A. THE BACKGROUND

My terms of reference

1. In the summer of 1967 your predecessor, Mrs. Castle, asked me to undertake an inquiry into the manpower problems of local authorities in grappling with urban transport planning both now and in the foreseeable future. My agreed terms of reference were:—

> 'To examine the manpower implications of likely developments in the next 25 years in urban transport planning, including highway planning, traffic management, public transport and allied fields; to consider the needs of manpower, its calibre, qualifications, training and organisation, with particular reference to local government; and to suggest what needs to be done.'

2. What, briefly, I have taken this to mean is how local authorities are going to cope with the problems that confront them in providing for the fast-rising flood of traffic on the roads, already choking the towns and destroying their quality for living, and how, further, they are going, in these conditions, to maintain an adequate system of local public transport; the particular purpose of my inquiry being what staff they need to advise them in all this, and to carry out the work, and how they are going to get them. My remit refers to urban transport for the reason that it is in urban areas that local authorities are in the worst difficulties and will increasingly become so; but the problem will concern all local authorities who are — or will be — responsible for traffic and transport. What I have to say, therefore, refers to all such authorities; although, obviously, the staffing problem is both more urgent and more complex in the congested urban area than in the largely rural one.

3. My inquiry has been limited to England. But the same problem arises in other parts of the United Kingdom; and if what I say is accepted as valid, it may be thought right to consider the action that has to be taken in relation to the whole of the United Kingdom.

4.* The background to the inquiry is the increase in population (from 51m in 1961, to some 60m in 1981); the even faster increase in the number of cars (just over 6m in 1961, to around 22m in 1981); and the rise in public expenditure on roads, traffic management and the improvement of public transport in towns. This, which was running at some £210m a year in 1961/62, or perhaps £270m at today's prices, is now (1969/70) at something over £550m, and will continue to rise at a rate faster than the growth of gross national product, with an increasing proportion of the total being spent on urban roads.

5. The planning, design and construction of roads in accordance with this programme, and the increase in traffic management to make the best use of the roads, alone present a formidable manpower problem to local authorities; and I think that this was very much in Mrs. Castle's mind when she asked me to undertake the inquiry. It seemed that for years the difficulty had been that the Government did not feel able to authorise as much expenditure on improving the road system as local authorities wanted. Now the difficulty might be that local

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*All the figures in this paragraph refer to Great Britain.

authorities could not keep up with the programme which the Government was prepared to contemplate. Already in 1967 there were signs of manpower difficulties, with "slippage" on the urban road programme, and complaints by several authorities that they were fast approaching the point when they would be unable to do all the highway and traffic work asked of them.

6. But this is only part of the story. The whole dimension of the job is changing. Traffic and transport can no longer, in the cities, be dealt with simply by providing more roads and making the best use of them. What is needed is a total transport policy for each major town, or inter-connected group of towns, and its hinterlands, related to the land use plan for the area. This transport planning job, analysed in part C and the related annex D, is of a quite different order from the traditional highways job — though that is included in it; and it entails manpower problems also of a different order. What skills does this job entail, and how can they be found? At present the full implications of the job are barely understood; and there are very few people indeed qualified to undertake it.

7. I was asked to look forward over 25 years. But it soon became clear that this was more than I could do. I have, therefore, interpreted this as meaning that I should look as far forward as I can. The important thing is that local authorities should be helped not only over their immediate staffing difficulties, but also to set up the kind of organisation they will need to handle their total transport problem, and to recruit staff with the right sorts of qualifications for the overall transport planning job as well as for its component parts. In this I include the training of existing staff, which may well for many years be the most critical part of the whole business. It will be a long process, evolving as the techniques develop. But once local authorities can get onto the right lines, and education and training of the appropriate kinds are available, the ball will begin to roll.

8. Land use planning is not within my terms of reference. But in fact land use and transport planning are inseparable; and in thinking about how a local authority needs to be organised to deal with transport planning I have had to bring in land use planning. I believe, further, that much the same manpower problems are arising in land use planning as in transport planning, in relation both to immediate shortages and to the longer term question of the skills needed and how to find them. I think there can be little doubt that the conclusions I reach on education and training for transport planning are equally valid *mutatis mutandis* for land use planning in its broadest aspects. Ideally the two should go hand in hand — I return to this later. I have not, however, looked at land use planning, except incidentally. Nevertheless, I feel sure that the people engaged in transport planning should be interchangeable with those engaged in land use planning; and that what is really in issue is the development of a corps of people with a wide variety of education, training and experience to work in the whole spectrum of environmental planning, and to be members of a single society in which all can meet to discuss their common problems. I am well aware of the difficulties in this; difficulties arising from the wide variety of skills which must contribute to the total complex of environmental planning. But I believe that unless it is done planning will not be adequately served.

9. One last preliminary comment. It is difficult to find a word to convey what one means by the total traffic/transport responsibility of local authorities, as it is now

developing, including transport planning as well as the traditional job of highway planning, design and construction, traffic management, car parking and public transport. Since "transport" is often used in the sense of means of transport, the Royal Commission on Local Government used "transportation" to mean the total local authority responsibility; and the management consultants (whose report is at annex D) followed them. But there is no real difference in meaning, and I have decided to use simply "transport". In the survey report (at annex C) the term traffic/transport is used to mean the traditional job as defined above, because it was with that job that the report was primarily concerned. Transport planning is referred to separately.

My advisory group

10. In undertaking this inquiry, it was agreed that I should have the assistance of an advisory group on which should be represented the local authority associations and the main professional bodies concerned with transport planning. In addition to nominated members, people representing a wide range of skills and experience relevant to transport planning were invited to join the group in an individual capacity. A list of members is given at annex A. It was agreed that I alone should be responsible for reporting to you, and that the group was simply a body of advisers without any direct responsibility for the substance of my report. I called meetings of the full group on three occasions which provided a useful exchange of views on the way the inquiry was progressing; but the greatest benefit of the group for me was that I could discuss particular problems with individuals or with small groups of members quickly and informally throughout the course of the inquiry. The members of the group also served as a point of contact with the various professional bodies, local authorities and individuals whom I wanted to consult. The professional bodies with which I had discussions, the local authorities, universities and other bodies which I visited, and the individuals with whom I talked are listed at annex B, and I would like to record my gratitude to all concerned, and in particular to the members of the group. I emphasize, however, that responsibility for the content of this report and for the recommendations made in it is mine alone.

The pattern of the inquiry

11. The inquiry has fallen into three parts. First, I had to find out what is the present manpower position in local government. So I asked the Ministry of Transport officials helping me to undertake a sample survey of local authorities with responsibilities in the transport field, in order to find out how the transport job is now being done, what manpower difficulties exist at present and what the prospects seem to be. Their report is at annex C, and is discussed in part B of my report. I would like to record here my gratitude both to them and to the authorities included in the survey.

12. Second, I had to get a picture of the organisation which a local authority needs to undertake the full range of the transport job and of the manpower required. For this purpose I had to think in terms of authorities as they are likely to be following re-organisation; that is to say of authorities responsible for planning over wide areas. I concluded that this part of the inquiry would be best carried out by management consultants; their report is at annex D, and is discussed in part C. I want to stress here that although the consultants were asked to think in terms of

future local authorities, and to study the problem in the context of two of the biggest among these, their conclusions are, I believe, of immediate value to all major authorities now. Again I would like to express my thanks. I could not have produced this report without the consultants' help.

13. Third, I had to consider the education and training of the people needed to work in transport planning. The consultants' report indicates the capabilities and the numbers required by authorities of the types they studied. I visited universities running post-graduate courses in transport and had discussions with officials of the Department of Education and Science, with the University Grants Committee, with the Science and Social Science Research Councils and with others. I also visited a number of American universities where transport is taught and found this very stimulating. My conclusions are contained in part D.

14. Finally, I want to express my especial gratitude to Mr Radley of the Ministry of Transport who has worked with me during most of the assignment, and who during the last year was solely responsible for steering the inquiry and for producing a first draft of this report. I owe more than I can say to his industry, his initiatives, his knowledge – and above all to his lively interest in the whole subject.

B. THE EXISTING MANPOWER POSITION IN LOCAL GOVERNMENT

The survey

15. In order to find what is the existing manpower position in local government a questionnaire was sent out to a sample of authorities, following which officials of the Ministry visited each authority to relate the answers to the particular circumstances. This limited the number of authorities that could be covered. The sample was designed to concentrate on county boroughs and the most densely populated counties; while at the same time eliciting sufficient comparative information about the less densely populated counties and the second tier authorities to provide a picture of the manpower position, and of the way the transport job is being done, over the country as a whole.

16. The report of the survey team is at annex C. The whole of this should be read to understand the existing position and what the troubles are. In the following paragraphs I pick out what seem to me the most important points.

17. I believe that the survey gives a fair description of the general situation. But I must stress its limitations. The sample was limited to 35 authorities, of which 9 were county councils including those of the 4 most densely populated counties, 14 were county borough councils and 12 were non-county borough or urban district councils. The sample of county boroughs was sufficiently large for the Ministry's statisticians to suggest estimates representative of county boroughs as a whole (i.e. of all 79 county boroughs) which are accurate within plus or minus 10%. But the size of the sample did not permit estimates to be made representative of all county councils or of all second tier authorities. Thus the figures in the report are of three kinds:

i. for the four most densely populated counties – figures drawn directly from the returns;

ii. for the county boroughs – figures derived statistically from the sample, and accurate within plus or minus 10%;

iii. for the other county councils and second tier authorities – figures from the sample authorities, which are included simply as a basis for comparison.

I should add, however, that there is nothing to suggest that these sample authorities are in any way unrepresentative.

The shortage of engineers

18. The report shows that most authorities have substantial vacancies for engineers for their traffic/transport work, and a worrying turnover of staff. In the county boroughs some 15% of engineer posts in the traffic/transport field are unfilled, the corresponding figure for the counties in the sample being 13%. These figures may be compared with the findings of the Mallaby Committee on the Staffing of Local Government, 1967. Working from a sample of 36 counties and 66 county boroughs their figures, derived from a postal questionnaire in 1964, show that 10% of *all* civil engineering posts in county and county borough councils were then unfilled. Assuming that the figures relating to all local authority engineering work and those for its traffic/transport element are not inconsistent, this suggests that the number of engineering vacancies in the traffic/transport work has been getting steadily worse. Successive Ministry of Technology triennial manpower surveys point to the same conclusion; the quoted shortfall of engineers, technologists and scientists in local government being 1,701 in 1965 and 1,890 in 1968. So it is clear that local authorities currently see themselves as being critically short of engineers, and that from their point of view the situation has been deteriorating over the last 5 years.

19. What emerges from the report is, however, that the true shortage is not one of engineers; it is a shortage of adequately qualified technicians to support the engineers. Looked at simply in terms of numbers (i.e. irrespective of quality) there are more than enough engineers working in traffic and transport in local government; but they are mis-used. Many engineers are spending much of their time on sub-professional work, with the result that the demand for engineers has been inflated. The balance of engineers to technicians now bears little relation to the real needs of the work being done. The survey team analysed the work of over 100 engineers, and concluded that about 40% of it could be done by properly trained and qualified technicians. Nobody would suggest that it is possible to establish work patterns that guarantee that all engineers are engaged solely on professional grade work at all times; but it is quite clear that technicians should be much more widely used, so freeing the engineers to concentrate on the work demanding professional qualifications.

20. This serious waste of professional manpower will get worse as the work-load increases, unless the balance is redressed. Further, since local authorities are finding themselves increasingly unable to recruit the engineers they think they need, many of them will not be able to carry out the amount of highway and traffic management work they ought (and want) to do. The authorities in the sample were asked to forecast the rate at which their expenditure on highways and traffic management would grow, and their replies indicate an expectation of growth, at constant prices, of 8% a year up to 1976/77. Whether the Government will feel able to authorise a growth in expenditure of this order I do not know; but investment in

roads is one of the fastest growing sectors, and since an increasing proportion of the expenditure is to be concentrated on urban roads, it is plain that local authorities will be expected to do a good deal more every year. And they will want to do more. But this will require a big change in manpower organisation and deployment; and the survey report shows how radical the change will have to be.

21. Present ratios of engineers to technicians vary widely, both from authority to authority, and according to the type of work being done. The survey shows that over the whole of the traffic/transport work there is a ratio of roughly two engineers to one technician. By far the greater part of the work is highway planning, design, construction and maintenance where the overall ratio is 2:1; while on traffic management it is about 1:1. A 40% shift of work from engineers to technicians would reverse this, resulting in an overall ratio of 1:2, and the survey team conclude that this is a realistic target at which authorities should aim. It cannot, of course, be exact. Ratios will vary from job to job, and according to the total work-load in the office. Some authorities might be able to do better than 1:2, others not quite so well. The ratio appropriate to particular jobs may vary, in time, as knowledge and techniques develop. But the general message is that in any local authority traffic and transport department there should be something like twice as many technicians as engineers. This implies, of course, properly trained and qualified technicians or people of equivalent standard. Many of those at present classified as technicians by local authorities are not up to this standard. I return to this below.

22. All this is in terms simply of numbers. But another serious consequence of the present mis-use of engineering manpower in local government (and not only in local government) is that it must depress the quality of engineers coming forward. It has been put to me that the quality of some engineers is very little different from that of the better, experienced, senior technician. I am not able to judge this; but if engineers have to spend much of their time on sub-professional work it seems probable that this must have been affecting the standard of qualification; and this, I believe, has been recognised by the Council of Engineering Institutions (the C.E.I.) which in 1966 changed the entry qualifications to the profession. The immediate point is that a right balance between engineers and technicians depends as much on the quality of the engineers as on that of the technicians. It requires engineers capable both of using technicians to the full extent of their capacity and of themselves concentrating on the most professionally demanding work. So, in building up a better balance between the two, local authorities must work towards a higher all-round quality of engineer as well as a substantially bigger ratio of technicians to engineers. The two go hand in hand, since the assurance of an intention to provide adequate technician support should make it at least a bit easier to attract high quality professional men.

23. The conclusion then is that local authorities, taken overall, are not, in terms of numbers, short of engineers; or would not be if their manpower was properly organised and deployed. They are very short of qualified technicians; and they are almost certainly short of engineers of the quality appropriate given adequate technician support. A shortage of technicians is recognised; but nothing like to the extent that it should be. This is strikingly confirmed by the fact that, despite the present engineer/technician imbalance, twice as many of the sample authorities are thinking in terms of recruiting substantially more engineers over the next 8 years as

visualise a substantially greater use being made of technicians. This formulation of manpower needs primarily in terms of engineers rather than technicians, and without any close reference to the demands of the work, is the main cause of the manpower difficulties local authorities are experiencing.

The proper use of technicians

24. The first thing is to understand what is, or ought to be, meant by an engineering technician. The definition adopted by the C.E.I. is at appendix C to the survey report (annex C). He is "one who can apply in a responsible manner proven techniques which are commonly understood by those who are expert in a branch of engineering. [He] requires an education and training sufficient to enable him to understand the reasons for and purposes of the operations for which he is responsible". Examples are given of typical duties which the engineering technician should be able to carry out; and these show how much work the technician can take off the shoulders of the engineer, given proper supervision.

25. Accepting this definition, each local authority needs to work out a programme of recruitment related to the demands of their work. This will entail a change in outlook; from the present approach with its emphasis on numbers and grading rather than on the character of the work, to an attitude which recognises the particular demands of the various jobs, and the differences in the duties and responsibilities of the engineer and the technician. In working out their recruitment programmes authorities must, of course, have regard to the qualifications and capacity of the staff already in post. Those who are now graded as technicians come from a wide variety of backgrounds, and many are not capable of doing all that is expected of the fully qualified technician. Equally, as already noted, some of the engineers may be capable of little more than the better technician work. Some technicians are graded as engineers and paid accordingly, albeit on a low scale and with little or no prospect of promotion. The Mallaby Report already referred to found that of all the civil engineering posts in local government, only 78% are filled by fully qualified staff, 12% being filled by staff with less than the required qualification, and 10%, as noted above, being vacant; and it is common practice for local authorities, especially second tier authorities, when advertising junior professional posts, to make it clear that, if necessary, people lacking full professional qualifications will be accepted. So, to achieve an establishment which will clearly distinguish between the work proper to an engineer and that proper to a technician will take time. But the process must be started now.

26. Once the needs of the work have been identified, the question is how to get the technicians. The recruitment of ready-made technicians of the appropriate quality is rarely possible; this is partly why authorities are relying so heavily on the engineer. Local authorities have to train their own technicians. In 1965 the C.E.I. launched a technician training scheme, establishing a recognised qualification; and although local authorities are training some technicians, in general too little use is being made of this. The only way to build up to full technician strength is by the recruitment of school leavers, of the necessary educational standard, who must be sponsored on day release or similar courses leading to qualification as C.E.I. certificated technicians. Already some two thirds of the sample authorities are sponsoring trainees under this scheme, and this is

encouraging; but even so, the flow of certificated technicians into local government falls far below what is required to get an appreciably better balance between engineers and technicians within a reasonable time. The technician shortage, therefore, demands a much bigger commitment to the C.E.I. scheme by local authorities than is found at present. This is vitally important; for unless authorities go all out to make a much greater use of technicians, they will be unable to escape from their manpower difficulties. The need for an increased commitment is urgent, and I cannot stress it too strongly.

27. Clearly authorities face a long haul in getting manpower in the transport field properly related to the work to be done, and it has to be recognised as a long term commitment. In particular, manpower planning must be isolated from pressures for short term economies, for any cutting back of the recruitment and training of technician trainees on this score means a continuing and increasing waste of professional manpower, in addition to which local authorities will fall further and further behind on the work. The greater use of certificated technicians will require careful phasing in as work-loads expand and engineers leave or retire, and the recruitment programme will have to be planned over several years. In the interim before a proper balance is reached, it will be impossible to avoid continuing to employ engineers on sub-professional work – quite apart from the fact that some of them may be capable of little more than this. Authorities will still need to recruit engineers to the extent necessary to guarantee a balanced professional work force (in terms of age, experience, promotion opportunities, etc.) capable of carrying the long term workloads expected; but recruitment should be kept to the minimum. Otherwise the balance will never be got right.

28. If authorities are to attract and hold the technicians they need, they have got to provide for them a career structure, with salary and promotion opportunities, commensurate with their ability. Some authorities say that they cannot get the school-leavers; I think this must be because they do not offer a sufficiently attractive career. The biggest employer of technicians in the transport field, the Greater London Council, have, I understand, no difficulty in getting the school-leavers they want; and I am sure that this is due in no small measure to the fact that the salaries and job opportunities they offer to technicians add up to a very worth-while career. It is still an economy since it saves the use – and prevents the mis-use – of professionally qualified engineers; and other authorities will have to follow the same pattern.

29. The ablest among the technicians should be given the chance to qualify as engineers. Local authorities do now sponsor students on sandwich degree courses, alternating periods of academic work with practical work in the office. The sample returns suggest that county borough councils and the councils of the four most densely populated counties between them sponsor over 200 students on such courses. This is encouraging; not only because it assists the recruitment of professionally qualified engineers, but also because it provides a professional parallel to the technician training scheme. By supporting both methods of training, authorities can ensure, when they have technician trainees of the right quality, that the best of them have the chance to switch to a full professional course. Several authorities allow the switch when it it justified by O.N.C. results; and it is obviously important that the ladder of improvement should be generally available

so that the best technician trainees are not lost to local government simply because they set their sights on becoming a fully qualified engineer.

30. The greater use of technicians will entail, as already suggested above, a higher all round quality in the engineers. In particular it will mean that their managerial role will become more important; and that all young engineers recruited by local authorities should be of the calibre to fill, when they have the necessary experience, middle and senior management positions. Young engineers with good management potential can be expected to be in very short supply, and to recruit men of this calibre authorities will need to offer competitive job opportunities and prospects. Given proper recognition of the respective roles of the engineer and technician they should be able to do so.

Improving productivity

31. The greater use of technicians is only one way in which local authorities can improve productivity in the traffic/transport field. More highway and traffic work could be achieved with existing staffs if the expense of manpower involved in the present relationship between county and county district councils could be reduced; if better working relations could be established between central and local government; and if the general management of the traffic/transport work could be improved.

32. *The two tier system.* The survey report shows clearly how wasteful the two tier system of local government, as it operates at the present time, is in the traffic/transport field. The split of powers and responsibilities between county and county district councils as it affects highways, traffic regulation and parking is complex in the extreme. It is virtually impossible to give a succinct yet adequate picture of the overlap between the two tiers, and I would refer the reader to the appendices to the Ministry of Transport's written evidence to the Royal Commission for a detailed account of the powers of the different authorities. Briefly the position is that highway powers vest in the county councils, but may in some cases be either claimed by or delegated to non-county borough and urban district councils. Some traffic powers vest in highway authorities; others stem from the Road Traffic Act 1960 which specifically gives certain traffic and parking powers to the district councils, although they must be exercised with the agreement of the highway authority. The overall result is a complex interlocking of the two tiers, and an administrative burden which is a great handicap to efficient working.

33. In paragraph 3.2.2. of their report the survey team compare the productivity of engineering staff employed by county borough councils and by the county district councils in the sample. They find that output per man on highway work is nearly twice as high in county boroughs as in county districts, on traffic management work nearly three times as high. It was put to me by local authority representatives on my advisory group that this might be partly due to the fact that district council schemes are all relatively small; but against this has to be set the fact that the figures take no account of the time spent by county council staff on county district schemes. I think there can be little doubt that the figures fairly reflect the position. It represents a serious strain on engineering staff. I have no figure of the total engineering staff employed by second tier authorities on

highways and traffic; but the 12 county district councils covered by the survey employ an average of 6 to 7 each (not including the surveyor or his deputy). This must mean a total among all district councils of well over 2,000, perhaps over 3,000, engineering staff whose output in terms of work achieved could be two to three times as high were it not for the two tier organisation.

34. The survey team's explanation is that the district councils have to get county council approval of their schemes, and do a great deal of work which proves abortive because they do not know in advance either whether the county council will be able to approve the scheme at all, or whether they will approve it in the form proposed. The team's remedy is that county councils should produce and settle with the district councils detailed work programmes, taking account of the financial and manpower constraints at both levels, to which both they and the district councils would be committed. In the traffic management field, where the difference in productivity is greatest, most of the work falls to the district councils; and the work must increase as the growth of cars creates congestion in quite small towns. If the county and district staffs could work as a team, instead of as self-contained units with all the checking, supervision and to and fro-ing this implies, more could be done more easily.

35. Such arrangements would effect some improvement – and the Ministry of Transport should try to see that they are made. Much must depend on the willingness of the county district councils to work them. The Royal Commission have proposed that everywhere transport (and planning) powers and responsibilities should be undivided – even in areas where there are two levels of local government. There can be no doubt that this would make for very much better use of engineering staff than the present county/district system. I have wondered whether it would be right to suggest that this proposal (if it is to be accepted) should be implemented right away, all traffic/transport powers being concentrated in the county councils ahead of re-organisation. The traffic/transport problem even in the smaller towns is already so bad, and is going to become so much worse so quickly, that local authorities can hardly afford to wait for re-organisation before getting the best use they can out of the manpower they have got. And under the shadow of re-organisation the recruitment problem of the county districts councils must surely become even more difficult. Nor can the district authorities do much in the way of technician training since few of them can provide the conditions for it. However, I recognise that it would be very difficult to change the distribution of powers with re-organisation in the offing. The effort must be to get a real increase in the productivity of the engineers employed by the district councils by arranging for them to work in tandem with county council staff.

36. *The central/local government relationship.* Most local authorities regard central government as a major cause of delay and uncertainty, and if the Ministry of Transport is to get the improved working at local level that is needed it must put its own house in order. Plainly there must be some control by central government over the amount being spent on highways and other traffic/transport improvement, and a general surveillance which relates local government activity to broad national policy. But while recognising the role of central government, it should at the same time be possible to devise a system of control which interlocks with and supports local authority activity instead of, as so often at present, conflicting with it. Lack

of effective communication is a major trouble; one example is that the Divisional Road Engineer may agree something with a local authority to which Headquarters subsequently disagrees. Further, a great deal of time has to be spent by local authority staff in supplying the Ministry with information, much of it of a trivial character. In exercising central control, the Ministry should recognise the professional competence of local authority officers, and limit queries to ones which it is really necessary to ask. The survey team heard many complaints of niggling queries which are much resented, besides being extremely wasteful of professional time. I understand that the Ministry is aware of this trouble for it is currently looking at ways of delegating responsibility from Headquarters to Divisional Road Engineers. The object must be to make clear to authorities well in advance what it is the Ministry want from them, and what, broadly, it will be able to approve; and within this to allow the widest possible discretion – certainly on all matters of detail. This question of the relationship between central and local government was one to which the Royal Commission attached great importance; and while it may be impossible to get it as free as it should be pending re-organisation, the Ministry should let up as much as it possibly can right away, if only because of the need to save manpower – its own as well as that of local authorities.

37. *Management of the traffic/transport work.* The survey report refers in paras 4.4.1 et seq. to the many bad effects in the internal running of Engineer/Surveyor departments that result from the present vacancy situation and rapid turnover of staff. Again and again they found discontinuity of work, inadequate planning and co-ordination, no effective lines of command and control. It is only fair to say that these defects are at least partly due to the manpower difficulties; and effective manpower and workload planning and the striking of a proper balance between engineers and technicians will create a working environment in which organisational problems can be tackled. But this will depend on the management capacity of the men in charge, and I come to this later in the report.

The transport planning job

38. In their report the survey team looked primarily at the manpower resources for handling the traditional responsibilities of local authorities (what they called the traffic/transport job); but they also considered the resources against the emerging recognition of the need for comprehensive transport planning. At present, the areas and powers of local authorities make it impossible for them to do justice to the transport planning job. Nevertheless the importance of a comprehensive approach to transport problems has to be recognised without waiting on re-organisation; and the question is what local authorities can do towards this, given the present unsatisfactory shape of local government.

39. The survey shows that half the sample authorities have more than one committee dealing with transport matters (excluding, that is, committees dealing with general matters such as finance and establishments, and those dealing with land use planning and redevelopment), those running bus fleets almost always managing them through a separate public transport or trading committee, while five of those in the sample have a separate traffic/road safety committee. Common membership is a device often used as a means of minimising friction and delay, but

this – which is anyway of limited value – is much more in evidence between highways and traffic committees than between these committees and the public transport committee. The general isolation of public transport in the transport planning process is something that emerges very clearly from the report. In the four major conurbations the new passenger transport authorities will provide comprehensive planning and management of public transport over the whole of these inter-locked areas, and a single point of reference with which the local authorities – responsible for the totality of transport planning – can deal; though the multiplicity of the authorities will remain a problem and it is to be hoped that they will organise themselves to act in concert. Elsewhere, closer links at the policy level must largely depend on the committee structure of the authorities, and I do not think there can be any doubt that, in any authority, a single committee should cover the whole transport field. It is also clear that liaison between the various chief officers and departments concerned with the total transport job must be strengthened.

40. The wider issue is whether transport planning ought not to be brought together with land use planning at committee level. In only two county boroughs did the survey team find highway planning and construction under the same committee as land use planning and development. In the other 21 county and county borough councils transport and land use planning are handled separately. This is a question which arises on the report of the management consultants on organisation, and is discussed in the following part of my report. The conclusion the consultants reach is that there ought to be a single committee (and a single chief officer) covering the whole of transport and the whole of land use planning.

41. Some 40% of the county and county borough councils in the sample have some form of transport planning organisation, but hardly anywhere do the organisation and manpower match up to the demands of the job. This too is discussed in the following part on the basis of the consultants' report. Authorities, are, of course, handicapped by their inadequate areas. It makes no sense to plan movements in just one part of a great urban concentration, or in a central urban area, without being able to relate the plan to the suburban or rural areas beyond; but this is the problem which the existing local authorities face.

42. Pending re-organisation authorities must grapple as best they can. In the larger urban concentrations, where the transport problem is worst and most urgent, and several local authorities are involved in what is essentially a single job, the authorities have to act in concert – as already suggested above in relation to the four conurbations where passenger transport authorities are being established. This is already being done in some of these areas, following the links developed during the land use/transportation studies. But for this to be effective means more than a committee of chief officers; it means building up a transport planning unit to serve the whole of the area – a unit of the kind suggested in the following part as the unit that will be needed to handle transport planning in the wider-ranging local authorities of the future. Perhaps the Ministry of Transport could use their influence to see that this is done, as they did to get the land use/transportation studies launched. Outside the major urban areas, the minimum requirement within authorities is, in addition to bringing all the transport/traffic work under a single committee, for some form of permanent link between the engineer, the planner and

the transport manager; and as far as external relations are concerned, for regular contacts between this internal unit and adjacent authorities, bus operators and British Rail.

43. The survey report points to the shortcomings in existing links between local authorities on the one hand and independent bus operators and British Rail on the other. Such links are vitally important if transport problems are to be tackled in a comprehensive way. The team report the views of the sample authorities and these are highly critical of British Rail. I note, however, that in the British Railways Board's Annual Report (1968) local authorities are criticised for the same sort of things that they lay at the door of British Rail. It seems that both sides need to make a real effort to improve relations. At the very minimum the Divisional Manager of British Rail should be known to, and have regular meetings with, the chief officers responsible for transport planning in all major authorities in his area, and this should serve as a basis for effective working links at all levels of the two organisations.

C. ORGANISATION AND MANPOWER FOR TRANSPORT PLANNING

Report from management consultants

44. Transport planning is still a fairly new concept. This is partly because the idea of comprehensive planning of and for all forms of transport, private and public, has only recently begun to be accepted; partly because local authorities do not, at present have the areas in which such planning can be done, nor is local public transport generally so organised that it can at all easily be brought within the planning scope. Only the Greater London Council have, at present, both an adequate area and the means of planning local public transport as part and parcel of a total transport plan for the whole of the area (through the transfer to them of the London Transport Board). In the four major conurbations the means of planning local public transport will be provided by the passenger transport authorities, but not until local government is reorganised will this be allied to power to plan the whole of transport over a rational area.

45. I assume that, as and when it becomes possible, the responsibility of every major local authority for the whole of transport planning will be clearly recognised. Already several of the bigger authorities, with severe problems of traffic congestion, do recognise that their highway, traffic and parking powers can only be exercised intelligently within the framework of an overall plan, depending on a thorough analysis of the expected volume of traffic and of public transport requirements. They are beginning to get to grips with transport planning; although very few have, as yet, either an adequate organisation or adequate manpower for the purpose. Over the next few years all the bigger urban authorities, either singly or working in groups, should develop transport planning organisations and transport planning teams; although I recognise that this may be very difficult in some areas until, at least, the pattern of reorganisation is decided. Once local government is re-organised all the major authorities will need these, though obviously on a much simpler pattern in the more rural areas than in those dominated by urban growth.

46. Transport planning is, as I said at the outset, something very different from the traditional traffic/transport job of the local authority. It entails decisions between a variety of choices: in the volume of private transport to be accepted in different parts of towns, in methods of limiting it to the extent thought necessary, in the planning and design of the highway system, in ways and means of traffic management, in the weight to be attached to the divergent interests of traffic movement and of environmental quality, in methods of providing and making attractive different forms of public transport. Every choice has to be costed, in terms of benefit as well as cash; and, in the end, what is involved is an overall decision how best to spend the resources that can be devoted to the whole transport business, knowing that some investment decisions will determine a great deal of the pattern for decades to come – decades which are certain to see revolutions in methods of transport.

47. Early in my inquiry it became clear that this is a job requiring a genuinely inter-disciplinary team; and that I had to work out for myself, with the help of members of my advisory group, how the team ought to be composed. It also became clear that I had to get a picture of what the whole organisation for transport in a local authority ought to look like in order to assess the manpower requirements of the transport planning function. For this purpose I decided, as explained in the introduction, to seek the help of management consultants; and after discussing the assignment with a number of firms I invited Messrs Urwick Orr and Partners to undertake it. This firm were already working on the organisation of the Sheffield City Council, by invitation of the Council, and were therefore familiar with the way in which a local authority works and with the particular problems that arise in local government administration.

48. The firm were asked to produce a blueprint for the organisation and staffing of the transport department of a major local authority of the future; and they were asked to do this in the context of two such authorities. First, they looked at the set up needed in a big, urban, unitary authority with a population of approximately 1 million, using Sheffield as the nucleus of the study; second, at what would be needed in a metropolitan authority with a population of approximately 3 million, using Manchester as the nucleus of the study. I am grateful to the City Councils of Sheffield and Manchester for allowing their officers to assist the consultants and to the officers for all the help they gave. I should make it plain that the officers had no knowledge of the assumptions being made.

The consultants' proposals

49. The consultants' report is at annex D. I have found it invaluable. Although it is based on an examination of the position in two exceptionally large local authorities, I believe that it will be found very useful by all major authorities wrestling with the problem of how best to organise their land use and transport planning work. I was in close contact with the consultants throughout the assignment, monitoring their work with the help of a small team of advisory group members, and I agree with what they say, both about the organisation, within a local authority, of the transport function, and about the capability requirements within the organisation. The whole of their report should be read. In the following

paragraphs I pick out some of the key points; but I do not attempt a complete summary.

50. *The functional approach.* The basic assumption is that all the work of a local authority should be organised on a functional basis; a chief executive officer being responsible for the overall management of all the activities of the authority. This functional approach is crucially important. It is not, of course, new to local government; but it is different from the traditional approach of having departments organised according to the professional qualifications of chief officers – the engineer's department, the architect's department, etc – each department including the whole range of diverse activities with which the particular profession is concerned. It means looking at the work that has to be done, breaking it down into its constituent parts, and determining the capabilities required for the various posts. This is the pattern followed in the report.

51. *Land use and transport planning.* The consultants emphasize that strategic planning of land use and transport must be regarded as an integral and continuous key function. These two elements of the environmental planning job cannot be tackled in isolation, nor merely by liaison between two separate departments. The report contains two possible organisation structures (see appendices VI and VII of annex D); one for the most heavily populated areas where the land use and transport problems, and the associated need for re-development, are exceptionally complex and severe (which would include the three areas where the Royal Commission have proposed metropolitan authorities); the second for other major authorities. After discussion with the consultants I have concluded that this second structure would probably be appropriate for all authorities between about ½ million and a million population, with congestion to tackle; though the critical factor is more the weight of their planning and re-development work than the size of the population. This is not to say, of course, that such authorities would necessarily want to adopt exactly the pattern suggested; only that it provides a useful guide to them in working out the organisation they want. Smaller authorities are discussed below.

52. In both structures it is proposed that a single committee and a single chief officer, described as the head of land use and transport, should be responsible for the whole of land use planning and the whole of transport. This is a key recommendation. It entails acceptance of interchangeability between those engaged in transport planning and those engaged in land use planning, and a loosening of attitudes towards the question of the professional qualifications appropriate in the whole complex of planning. I am sure, as I said at the outset, that this has got to come if planning is to be properly served.

53. The consultants were handicapped by the fact that they were not asked to study the land use planning function except as it impinges on the transport function; and they say that a more detailed study of land use planning could well result in some modification of the organisation structures portrayed. Nor do they attempt to break the whole of the land use planning function down into its constituent parts. But they are confident that the basic principles they suggest are sound.

54. *Separation of long and short term activities.* A second basic principle is that the longer term strategic planning activities should be carried out separately from the short term planning and execution, although all within the same span of top management control. The reason for this is that the strategic planning ought to be undertaken by officers free of the pressure of short term demands (although aware of them); and that they require different capabilities and personal characteristics. What this means in terms of organisation can be seen from a study of the suggested structures.

55. *Intelligence and research.* Every major local authority needs an intelligence section, to provide both economic and social data. The consultants have shown this as a central service, directly responsible to the chief executive officer (and through him to the council) and available to all departments. Broadly this would do two things: act as a data bank and provide economic and social intelligence to all departments, and undertake research relevant to all the responsibilities of the authority. Some of the intelligence and research work needed for the transport function (and no doubt for other functions as well) must, however, be tackled by a research team within the department; and the organisation structures proposed provide for a transport research section within the transport planning unit. The balance to be struck between the central and the functional sections will depend on the needs, and on an assessment of the most economical way of getting the work done. Manpower for intelligence and research must be scarce; and it is especially important that it should be used to maximum effect. I return to this below when discussing the smaller authorities.

56. *Public transport.* One of the assumptions agreed with the consultants at the beginning of their assignment, was that where passenger transport services are owned by the local authority, the authority will appoint a professional executive to be responsible for the detailed planning and management of the undertaking, subject to general policy direction by the council and control over investment and budgets. I asked them to work on this assumption because it seems to me that this is the only efficient way to manage a public service like passenger transport; and that a local authority ought not to be involved in day to day discussions about routes, fare stages, operational questions etc – though it must be responsible for the level of provision to be made and for the overall finance. The consultants agreed with this; but emphasized that there must be a clearly defined relationship between those responsible for the whole of transport and those managing passenger transport, and continuous consultation between them about requirements and proposals. The same is true when the services are not municipally owned, and the pattern of public transport depends on agreements reached between the local authority (as transport authority) and the National Bus Company or British Rail. It is emphasized that two way communication must everywhere be arranged with British Rail and other transport undertakings. The general isolation of public transport in the transport planning process at present, as indicated by the survey report, shows how far things need to improve before a level of effective co-operation is reached.

57. *The capabilities required.* The functional approach to land use and transport planning which the consultants adopt entails the building up of multi-disciplinary units. This means that the men in charge of departments, sections and units, will, in

general, need to be able to give effective leadership across a wide spectrum of professional competence. Clearly individual attributes and management skills are going to weigh very heavily in such an organisation; and basic professional qualifications will be of diminishing importance vis a vis these personal qualities the nearer a man gets towards the top. The consultants suggest that the most important attributes for the senior officers are managerial ability, capacity for original thought on problems relevant to the environment, and skill in communication; to which, for the chief officer, should be added a capacity for taking a broad strategic view of the complex problems influencing urban environment and for bringing objective judgment to bear in devising solutions. Basic skills and post-graduate training and experience are both, however, important; for senior officers must have a sound appreciation of the skills used by individuals under their control. What is required by the interdisciplinary, functional approach to jobs is not some vague diluted omniscience, but the harnessing of individual skills by competent organisation and management.

58. Besides identifying the sort of men that will be needed in the key posts within the transport sections of the land use/transport departments, the consultants also examined the manpower needs of the transport planning function. They identify the constituent elements of the function as (i) transport research and (ii) plans and policy development. They suggest that, in terms of basic skills, the main staff requirement of the first includes engineering (preferably civil), operational research and economics, but they add that any other background could be equally acceptable provided it includes the numerate skills. The second, they think, should probably be staffed by outstanding men from other planning units, including transport research; but must include engineering, economics and at least one man with comprehensive experience in environmental planning. They emphasize that any team must include a range of skills, the one common attribute being the ability to understand problems and situations which are expressed in numerical terms, and to apply numerical techniques in their solution.

59. How many of these men will be needed? Clearly one cannot be at all precise about numbers, for the size of the transport planning unit in any authority must depend on the range and complexity of the problems, and on the balance struck on research between this unit and the central intelligence section. While recognising these uncertainties, the consultants nevertheless believe that the minimum number of professional staff needed for transport planning would be 10 to 14 for the biggest authorities – or for those with the most complex problems to resolve; 7 to 10 for those in the medium range. These professional teams are seen as the minimum necessary to get transport planning launched on a comprehensive, competent basis. They will need adequate administrative and technical support, including a small group of systems analysts and programmers to provide a capability for processing data through computers. There is, I am aware, a national shortage of people so qualified; but efforts are being made to remedy it. Authorities should do what they can to help themselves by being prepared to release suitable people for sandwich or other courses.

60. *Smaller authorities.* The consultants also gave some thought to the manpower needs, for transport planning, of the smaller authorities, or those with very much less complex transport problems than the two they had studied. Every

authority responsible for transport is going to become involved in transport planning and will need some capacity to handle it. But when the population base is relatively small, the authority may not be able to justify a team of half a dozen or so professional officers simply on transport planning; and anyway the smaller authority might have difficulty in recruiting a full team of the necessary calibre. The consultants assume, and I am sure they are right, that every authority must possess its own "plans and policy development" capability, but as regards research they suggest that a national strategy should be developed covering the needs of the smaller authorities. This, they say, requires further study, and I think it should be undertaken by the Ministry of Transport. It might, indeed, prove possible to assist all authorities over their research in some degree.

61. The right answer to the organisation and staffing of transport planning in the smaller authority must tie up with land use planning. If I am right in thinking that land use and transport planning must require much the same capabilities, the two can be handled in a single section; and, given authorities of the minimum size proposed by the Royal Commission, it should be possible for all of them to sustain teams adequate to their total environmental planning function. But this depends on whatever may be concluded about the relevance to land use planners of the training proposed (in the next part) for transport planners.

The use of consultants

62. All authorities should be prepared, on occasion, to supplement their own staff resources by the use of consultants; for highly specialised or exceptionally demanding problems, where particular technical skills are required, or simply to help them over peak loads. The consultants make this point in their report at section VIII. B. This is not only because authorities cannot sensibly try to staff themselves to cover all contingencies; it is also because some of those most expert in the application of transport and highway planning techniques, and some very good training facilities, are always likely to be found in consultants' offices, and the authorities need to tap their ideas, experience, skills as well as those of their own staff. They cannot rely on consultants for the continuing job of transport planning; but they can get help from them in the techniques to be used and in the study of particular problems arising.

D. MEN AND TRAINING

63. It is plain that transport planning needs men of very high ability; capable of original and constructive thought about the urban environment, of managing big and complex programmes, of working with and getting the best out of a variety of different skills, and – not least – of explaining their ideas. People are apt, of course, to declare that very high ability is required for any enterprise they are intent on; but I cannot help thinking that there are few of which it is truer than transport planning at this moment in time. It is a job of infinite difficulty, both technical and political; and the way in which it is done (or not done) will have an enormous – it could be devastating – impact on the lives of us all. In addition to which a great deal of public money is at stake. The cost to the tax-payer and the rate-payer of provision for traffic and transport is rising fast, and some very big investment decisions are going to be made. Transport planning is so difficult, and

potentially so unpopular, that one sometimes wonders whether it ought to be attempted at all. But it must – and will – be attempted. The alternative of letting things rip, and covering townscape and landscape with highways in a vain attempt to provide road space adequate to the vehicles trying to use it, is to us, in this small country, even more repulsive. So somehow we have got to find people capable of tackling the job.

64. The amount of naturally high ability is limited; the demands for it almost unlimited. When I was in the States one or two people said to me: don't bother with education and training, just pay the top of the market and get the best men there are. Even if that were conceivable for government, which it is not – neither for central, nor for local – I should doubt if it was a sensible way to go about it; there is a lot that can be taught about the way to tackle transport problems. And although, truly, local authorities must be prepared to pay substantially higher salaries than are common at present if they are to get men of the necessary ability into the transport field, a major effort has to be made to develop the ability the job needs.

65. What this entails, I think, is the establishment of at least one major teaching centre, of a quality to attract men of high academic attainment in one of the appropriate basic disciplines, which will provide a rigorous training in the skills needed by those proposing to work in transport planning and a good understanding of the practical problems involved. This must include post experience courses for those already working in transport (whether in local government or anywhere else) who need additional training to fit them to tackle the overall planning. What it entails too is a willingness by employers in the transport field, especially the central departments, the local authorities, the passenger transport executives, to promise employment to men who succeed in the post graduate course, and to second men already in employment for the necessary training. This is perhaps possible only for the bigger local authorities, employing a fair number of professionally qualified men in their highway and transport departments. But they must do it. When local government is reorganised all major authorities responsible for transport should be able to second men for training; and should plan their establishments on the assumption that this will be a regular part of their staffing arrangements.

Numbers needing training

66. Before going on to consider the content of the education and training needed, and how to provide it, I will try to estimate the number of people for whom it should be provided.

67. On the basis of the consultants' report it was suggested above that for the effective execution of the transport planning job, the biggest of the future local authorities will need inter-disciplinary professional teams of some 10 to 14 men, those in the ½ to 1 million population range, teams of 7 to 10 men. On the pattern of local government proposed by the Royal Commission of 61 main local authorities responsible for transport perhaps half (or slightly more – allowing for the fact that some authorities below the ½ million mark will have complex transport problems to deal with) will need teams ranging from 7 to 14. I cannot estimate the needs of the smaller authorities with any accuracy; but think it probable

that most of them will need 4 or 5 men trained in transport planning. Assuming then that something like this pattern is adopted for local government, so far at any rate as transport is concerned, for English local authorities, not including the Greater London Council, the need, in time, should be of the order of 400 to 450 trained men. Allowing for the G.L.C., the passenger transport executives, provincial organisations, authorities in Scotland, Wales and Northern Ireland, central government, transport industries, consultants etc, and for those who will take up academic work or who will work overseas, I would add a further 300 to 350, arriving at a total of 700 to 800.

68. This is, of course, a long term goal, and we can only expect to build up to it over, perhaps, 25 to 30 years. Students will come from three main sources: graduates taking what should normally be a 2 year postgraduate course; men in their twenties or thirties, already in employment and selected for their ability, taking either a 1 year course or, where possible, the full 2 years; older and more senior men already in employment taking short courses of, perhaps, 3 months duration. To achieve the build up proposed above the aim should be 25 to 30 students a year for the 2 year course; 15 to 20 for the 1 year; 30 twice yearly for the short course – this would leave room for seminars and for still shorter courses in particular subjects in between times. So, adding it all up, I think that the minimum provision, for post-graduate and post-experience training, should be of the order of a 100 or so places.

69. I suppose that it might take 3 to 5 years to build up to this. It is impossible to say how, thereafter, it would develop. The arrangements must be flexible. If the training proves itself, and employers recognise its value, I do not think the demand should ever fall below this and it might increase. It might be thought that the demand for post-experience courses will diminish as time goes on; but I am sure that this will be a continuing need – and perhaps on the scale suggested – although the long courses may become shorter and the contents more sophisticated as more and more of those working in transport planning will have had post-graduate training. The techniques demanded by planning, like the techniques of transport itself, will continually develop; and however well trained men may be on entering the profession they will need post-experience courses to keep themselves up to date.

70. One possible development that would greatly affect the numbers coming forward for a transport planning course is that it might be decided that the course should be extended to cover some land use planners as well. It seems to me that, though of course with adaptations, it would be equally appropriate – and I return to this below. If this did happen it could well double the number of places required.

The training content

71. Transport planning requires, as I have already said, an inter-disciplinary team. This is a main theme in the management consultants' report and I do not think there is much argument about it. All that I have learned in discussions throughout my inquiry, both in this country and in the United States, supports it. The two common attributes of all the professional staff engaged in transport planning must be numeracy and ability to communicate ideas. For the rest it needs a mix of

engineers, mathematicians, economists, other social scientists. But all must be trained – and trained together – in organisation and management skills, in the elements of the transport planning problem, and in working in a team and appreciating the contribution which each can make to the common purpose.

72. The heart of the training must lie in a 2 year post-graduate course, leading up to a masters degree. This is needed both to enable students to reach the standards required and to establish the high quality necessary to attract first class teachers. An undergraduate course would not be appropriate. Candidates should be required to have a good honours degree (or equivalent professional qualification) in one of the relevant disciplines; and a sufficient mathematical qualification to enable them to tackle advanced work. A good proportion of the students must be engineering graduates for the reason that transport, taken as a whole, will always need a large number of engineers – and that an engineering qualification will always, therefore, provide most of the job opportunities for newly qualified men. But there must always be a fair number qualified in economics and some in mathematics (or statistics); and I would hope a few from other disciplines, in particular the other social sciences.

73. The objective of the course should be to equip students with the ability to analyse problems and work out practical solutions which are both politically acceptable and within the resources available. There is a good deal in common between the education and training appropriate for transport planning and that given in the Business Schools, the main difference being that the former must include subjects relevant to transport and that the studies in practical application must relate to transport. The distinctive feature of the graduate from the transport planning course would be his particular competence in the environmental field, but his training should make him acceptable in a wide range of exacting posts in industry, as well as in local or central government. At the same time the course must provide the opportunity for the development of specialist skills useful in transport planning and management. Students have to perform effectively in one or more of these in their early post-graduate years even if they are potential managers, and some of the course's graduates may well find a career in a specialist function.

74. I am fortified in my conclusion that the heart of the training should lie in a 2 year course by the experience of the London and Manchester Business Schools. Although it was originally thought that one year was all that could be managed, the Master's course in both is two years and the Schools find that this is necessary (though Manchester also have a 1 year diploma course) – and that there is no difficulty in attracting students.

75. I am not qualified to say just what the content of the transport planning course should be, and anyway this must be worked out by those responsible for it, adapting as they go along in the light of experience. But in order to explain the kind of ground that I think it will have to cover, I asked a few members of my advisory group to work out a possible course as a broad guide. This will be found at annex E. I emphasize that it is only intended as a general indication, and that I do not suggest that the course eventually worked out should follow this precise line.

76. The core of the course should consist of instruction in the techniques needed for analysis, programming, management, costing – and in the practical application of these techniques in the field of transport. (The extent to which individual students need to study particular subjects will depend, of course, on the ground they have covered in their degree course.) It must also include study of the environment which transport plans have to serve and in which they have to gain acceptance; the inter-relation of transport and land use planning; the problems of urban and public transport; urban structure; sociology and social psychology. I believe too that it ought to include something I can only describe as "urban values"; since the transport planner must be a man who realises that the optimum plan for transport may not be, and probably is not, the right plan – that what finally matters is the total environment in which peace and quiet and civilised surroundings may be valued more highly than the ability to get around fast. This, of course, is where the link-up with land use planning is especially important. The course must allow plenty of time to be devoted to case studies and group projects; and also a wide range of elective subjects so that students can tailor the course to their own particular needs.

77. I have suggested above that, alongside the 2 year course, there should be a 1 year course, mainly for men in their twenties or thirties already in employment, selected for their ability to profit from such a course. This is something of a shot in the dark since I am not sure how much can be got into one year but I imagine that employers might be unwilling, often, to second men for more than a year, and that this might be as much as some men themselves would want – though I would hope that men of outstanding ability would be given the chance to take the full 2 year course. Again I am not able to say just what the content of this shorter course should be, but I think it should concentrate mainly on what I have described above as the "core" subjects of the 2 year course – and again should be tailored to fit the needs of the individual.

78. Finally, there will be the shorter, post experience courses for the older or more senior men already in employment. I have assumed that it will hardly be practicable to spare such men for longer than 3 months, and I believe that a great deal can be taught in an intensive short course which will, at the least, help the men to understand how transport planning needs to be tackled and to work with people bringing a variety of skills and techniques to the job. I am sure that it cannot be for less than 3 months if it is to be worthwhile. I make no attempt to suggest the content of this course; this has to be worked out by those who know what can be done in a short course for people of the kind who will come to it. The only point I want to make is that these short courses must be given in the same place as the longer ones, and by the same staff; their quality will depend on their association with the post-graduate teaching.

79. Students for the post-experience courses must be sponsored by their employers. I have been much encouraged by the Local Government Training Board whose chairman told me that they would hope to be able to support training of the kind suggested – if approved – to the tune of perhaps £100,000 a year. If this proves possible it should enable fees to be met for most, at any rate, of the candidates from local government on the sort of scale I have suggested. It is essential that local authorities should be prepared to see that as many men as can benefit from it get this training, since for many years it is on the men already in

employment that they must mainly depend for transport planning. As for the post-graduate students, they should be supported by grants from the Research Councils in the ordinary way. It has been suggested to me that local authorities should be prepared not only to promise them jobs if they take the course successfully (this I do think would help) but actually to take them on the pay-roll while they are training. I can see, of course, that that would make things a lot easier, but I cannot think that it would be reasonable to suggest that a man taking a post graduate course in transport planning should be treated any differently from men taking other postgraduate courses. If the training is worth having and offers the prospect of subsequent worthwhile employment, the student must be prepared to take it on the usual terms.

Present courses

80. At the present time 14 universities and colleges of technology in Britain are offering full-time, post-graduate courses in transport subjects, 2 of them having started last autumn. They are listed in annex F. I have in the course of this inquiry visited most of the universities concerned, talked to directing staff, studied course syllabuses and tried to get some idea of the student make-up. The question is whether any of these courses provides, or could with some adaptation provide, the kind of education and training I have suggested as being what is needed for transport planning. I do not think that any of them does or could.

81. This does not imply any criticism of the courses. Most of them are not aiming at transport planning in the sense discussed in this report. Courses are directed more to particular facets of transport: traffic engineering, highway engineering, the problems of urban traffic, transport economics, the methodology of land use/transportation studies and so on. These are the transport problems of which everyone has been most conscious, and they are subjects which need specialist training. Some of those working in the universities have, certainly, recognised that, in addition, a more widely based course is needed for training people to grapple with the whole complex of transport, and are trying to provide this. But the conditions in which they have found themselves working have not made it possible for them to develop fully inter-disciplinary courses of the kind I have suggested, however much they may see the need.

82. It has been borne in on me, both here and in the States, that an inter-disciplinary course is the hardest thing to establish within the normal university pattern, and is apt to be an early casualty in times of stringency. It must depend for much of its teaching on what other faculties are willing, and able, to spare. It never does manage to establish an adequate inter-disciplinary teaching strength of its own. I return to this later when discussing how a strong transport planning course could be established. Here I am only making the point that, under existing conditions, it has hardly been possible for any one to do it.

83. While on the subject of existing courses there is one comment I must make. Whatever may be provided in the way of education and training for transport planning, there will still be a need for some more specialised courses in transport subjects – in highway planning and design, road construction, traffic engineering, transport economics, public transport and so forth. But not, surely, as many as there are now. Teaching resources, scarce anyway in this field, are spread too thin;

and some of the courses attract only a handful of students. Annex F shows that, in 1968/69, out of 15 full time, post-graduate courses in various transport subjects, only 5 attracted more than 10 students. The Research Councils, in allocating grants to students, concentrate on a severely limited number of courses; but this does not prevent a much larger number from struggling on, with support from other sources, or new ones starting up. Nor does one want entirely to prevent this. The role of the "academic entrepreneur" in new, fast developing subjects like transport is obviously important; and no one wants to stifle university initiative or to fall into a stereotyped pattern. But it is my strong impression that not all the existing courses are really worth-while; that this is true too of some of the associated research; and that better results would be achieved if there were more concentration.

84. This is not, I am sure, peculiar to transport. The same problem must arise in other fields, especially ones designed to cater for an emerging demand and which are, therefore, currently fashionable. It must exercise the university authorities and the University Grants Committee; and it is for them, not for me, to say how the scatter of small courses can be kept within bounds. The Research Councils do what they can, but their success is limited. They tend, as their name implies, to be research oriented; and while they certainly try to foster appropriate educational courses, I am not sure that they can, as things stand, know enough about either the educational needs or the quality of the courses on offer. I think it would be helpful if more could be done to formulate what the employer wants in the way of people capable of working in transport planning, and – in consultation with the academic world – what this seems to need in the way of course content and teaching strength. This would provide a guide to the universities; and would help the Councils, the Local Government Training Board, Departments, local authorities and other employers in their decisions about the courses to support. This could perhaps be achieved through an advisory panel representing the Minstry of Transport, the local authorities (through the Training Board), the professions mainly concerned and the universities.

A transport planning centre

85. The last and the key question is how a post-graduate course (or courses) in transport planning, of the kind suggested above, together with associated shorter courses, could be established.

86. I have already referred to the difficulties in establishing, and in maintaining even if established, an inter-disciplinary course within a university. I found exactly the same difficulties in United States; of the universities I visited only the University of California seemed to manage it – they being wholly committed to the support of the Institute of Transportation and Traffic Engineering. Partly for this reason, and partly because of the high quality of teaching staff and the high staff/student ratio that will be needed, some members of my advisory group have suggested to me that a successful transport planning course can never be established within a university. They say that what is needed is an independent centre set up for the purpose, which would not be inhibited by the normal university rules or customs about salary levels, staff/student ratios, senior/junior staff ratios, administrative procedures and so on. It is put to me – and I agree – that some of the teaching staff ought to come from private industry; one or two should, desirably, come from the United States or other foreign countries; and that these

would have to be paid at rates above those normal for academic staff. It is said that this can never be managed within a university.

87. Yet, to my mind, a university is the proper place for a transport planning course. The purpose of such a course is higher education. Although, as I explain below, I am advised that the teaching centre must have a strong, inter-disciplinary staff of its own, it will need the support of other faculties; and the members of the staff ought to be part of a wider academic community. I know very little about university life; but I should have thought that engineers, economists, statisticians etc. teaching in a transport planning course would find that discussion of their subjects with teachers and research staff in their faculties of origin was a necessary stimulus – or, to put it the other way round, that to be cut off from all other teaching and research would become increasingly sterile. I recognise the force of the arguments for an independent centre; but they do assume that a university cannot (or will not) provide the conditions necessary for teaching of the breadth and quality required. Provided it is agreed that the quality I am postulating is, in fact, required, I cannot believe that it cannot be provided within a university, the normal rules being adjusted in whatever way is necessary to secure the purpose.

88. What is needed is, first, a decision that a centre of the quality and strength required should be established at a particular university; second, provision of the finance necessary to launch the centre and to sustain it while it is building up; third, that the university should be committed to its continuing maintenance at the appropriate level of strength; fourth, the assurance of continuing support from central and local government as the employers mainly concerned.

89. *A single centre.* Should there be one centre or two? I would have preferred to see two, because there is certainly scope for variety in education for transport planning. But I do not think that the 100 or so student places I have suggested above as the minimum to be aimed at, will support more than one centre. If the demand for people so trained proves substantially greater than I have estimated, and certainly if, in time, it is agreed that the course, with variations, would be equally appropriate to some land use planners, there should be room for a second centre. But at the start only one should be contemplated.

90. The reason is the concentration of teaching strength required. The centre must contain within itself the corps of teaching staff needed and not be dependent on other faculties for more than occasional, specialist assistance. The teaching must be participative; and the courses tailored to the needs of students coming from very different educational backgrounds. The two together demand a high staff/student ratio; in addition to which an important part of the work will be consultancy, which teachers of high quality should be able to attract. Most of the research at the centre should consist of consultancy work, concentrating on practical projects undertaken on behalf of local authorities and others. It should largely pay for itself. The centre will need I believe not less than 4 chairs. This means, I am told, a total "in house" teaching strength (including supporting research) of at least 15. I realise that this could present a problem to a university, faced perhaps by clamours for additional staff from other faculties and with funds always short. But I am clear that unless the

centre is of at least this strength, and the university in which it is established is prepared to commit itself to this (given that students of the necessary quality are forthcoming) the purpose will not be achieved.

91. I cannot suggest in which university the centre should be established; nor whether it should be one in which there is already a post-graduate course in traffic/transport, or should break new ground. This will depend on a number of factors: the location (preferably in, or not far from, a major city and so with transport problems on its door step, but preferably not in London); the existence of strong faculties in related subjects – engineering, economics, mathematics, sociology; the readiness of a university, otherwise suitable, to commit itself to the support and maintenance of the centre. It should be associated with an advanced school of town planning or civic design; but that may be too limiting a condition. How the choice should be made I discuss below.

92. *Land use planning.* This perhaps is the point at which to revert to the possibility that the centre should become one of environmental planning, training people for land use planning (in its broadest sense) as well as for transport planning. This would have enormous advantages, as it would provide for the training of an integrated corps of planners; and this is what local authorities need, as well as the many specialists in different facets of transport and town and country planning. There is, indeed, no argument about the inter-dependence of land use and transport planning; and I am sure it is of first importance that this should be recognised in the training for both. Moreover, though I have not, in the course of this inquiry made any study of the education and training of land use planners, I think that for the broader aspects of their work they must require the same degree of numeracy as the transport planners, and the same knowledge of the techniques required for analysis, programming, management, and costing. In short, I cannot doubt that the core of the course appropriate for the transport planners is equally appropriate for those who will be engaged in the broader aspects of land planning; though for them the application of the techniques would need to be differently oriented, and subjects more directly germane to land use planning would replace those particularly related to transport.

93. This is a possibility that I hope will be considered by those in central and local government, and in the planning profession, who are responsible for land use planning. It would obviously be helpful if an early indication could be given of the reaction, as it affects the establishment of the transport planning centre, and could mean that, in time, a second centre would be needed. But a transport planning centre is needed urgently; and a start on it must not be held up if decision on the wider issue cannot be reached quickly. Meanwhile I must assume simply a centre concentrated on transport planning.

94. *Finance.* The U.G.C. have let me have a broad indication of the cost of a transport centre on the lines proposed. Excluding the cost of land, the capital cost of a fully residential centre for both post-graduate and post experience students (which is what I would like to see) would be of the order of £400,000; if residential accommodation is provided only for the post-experience students it would be about £300,000. Annual running costs, assuming that the cost of meals and accommodation are fully met by the charges made for them, would be of the order of £175,000. So far

as the running costs are concerned as much as possible should be recouped from fees; met by the Research Councils for post-graduate students, by the employers for post-experience students – the Local Government Training Board doing this, so far as they can, on behalf of the local authorities. There will, however, be a deficit on running costs in the years while the centre is building up; and funds have to be raised to meet the capital costs. I would hope that the university concerned might be able, through a U.G.C. grant, to make some contribution towards these; but the greater part will have to be found elsewhere.

95. It is usual, in such circumstances, for the Government to look to those interested in the establishment of a special course – i.e. the users – to help in meeting the cost. In the case of the Business Schools substantial sums have been and are contributed from industry and commerce. For transport planning it is government, central and local, which is the main user. I understand that the Local Government Training Board would find it difficult to contribute to capital costs, though they would, as already noted, hope to assist substantially over running costs. I think, therefore that it must be for the Ministry of Transport (together with the other U.K. Transport Departments) to find what capital is needed to supplement what the chosen university aided by the U.G.C. can manage, in order to launch the centre. The Departments must also be prepared, in the first few years, to contribute towards the running costs; though this should not continue to be necessary once the centre has its full quota of students.

96. Times are hard, I know; and the demands on the Exchequer are unending. But an enormous amount of money is at stake in transport planning. I am, myself, confident that to develop a corps of transport planners trained on the lines suggested in this report would do much to ensure the most economical use of the resources that are, in any event, to be devoted to transport. The possibilities of waste in this field are almost unlimited; and the cost of establishing a transport centre, and of sustaining it during the early years – always supposing it is agreed that it would produce men well equipped to handle transport planning realistically – is a very small price to pay by comparison.

97. *Responsibility.* Getting the centre launched will depend on the initiative of the Ministry of Transport which has the main national interest in transport planning and which, on my proposal, would be responsible for a good part of the initial finance. The central Departments will obviously need to discuss all the proposals in this report with the representatives of the local authorities responsible for transport; and in doing so to make sure that the centre, if established, will have their support – both in recruitment of post-graduates and in sending men on post-experience courses with the aid of L.G.T.B grants. They will also need to have discussions with the U.G.C., and, if they agree, to get them to canvas the universities in order to determine which university is likely to be most suitable and willing to make the necessary commitment, and on what terms. If possible, this should all be settled by the end of 1970 so that a start can be made in the autumn of 1971. Time is running out for transport planning.

98. I believe it will be important that the centre should be under the general direction of a separate governing body, within the university, representative of the main user interests sponsoring it, as well, of course, as of members of the university.

This will help to ensure a continuing commitment both by the university and by the main user interests; and also to provide a feed-back on the practical success of the training given. I understand from the U.G.C that there should be no difficulty in arranging for this. I therefore suggest that the university in which it is decided that the centre should be established should be invited to set up a governing body for the centre, to include representatives of the user interests together with two or three of the leading practitioners in transport.

99. *The staff.* I have already remarked that the staff of the centre will have to be of high quality; and the university will have to be prepared to pay what it costs to get the men they need – whether from the academic or the business world, whether from this country or abroad. They will be asked to do a very difficult job, finding their way in a new field. Almost everything will turn on the calibre of the Director. Here, perhaps, the doctrine that I heard in the United States – never mind the qualifications, just find the guy – is sound advice. He should, preferably, be a man whose interests lie in the general field of planning transport or public administration; he must be prepared to devote himself wholeheartedly to building up a first class centre and he must have the organising ability to do it. He need not be a transport man. I believe that it would be possible, because the need exists, to establish a transport planning centre of international reputation. Some other countries of the Western world have, perhaps, taken their thinking about the education and training of men for transport further than we; few, if any (as far as I know) are taking their intention actually to plan the whole of transport anything like as far as we. This encourages us to base our education and training on hard realism. We are still at an early stage; and we have the chance to make a real difference to the quality of the planning we get. A great deal will depend on the choice of Director.

ANNEX A

THE ADVISORY GROUP

The 22 members of the group are listed below:–

Nominated by the County Councils Association;
Col. W. C. S. Harrison, (County Surveyor, West Sussex)
Mr. J. V. Leigh, M.B.E. (County Surveyor, Hertfordshire)
Maj. E. Mealing, (Gloucestershire County Council)

Nominated by the Association of Municipal Corporations;
Ald. C. Stephenson, (Huddersfield County Borough Council)
Ald. E. Wistrich, (Camden Borough Council)
Mr. N. H. Stockley, (City Engineer, Liverpool)
Mr. S. Lloyd Jones, (Town Clerk, Plymouth)

Nominated by the Institution of Civil Engineers;
Mr. R. Nicholas, (G. Maunsell & Partners)

Nominated by the Institution of Municipal Engineers;
Mr. H. D. Peake, (Engineer, Surveyor and Town Planning Officer,
London Borough of Ealing)

Nominated by the Royal Institution of Chartered Surveyors;
Mr. K. Clemens, (Messrs. Drivers, Jonas and Co.)

Nominated by the Royal Institute of British Architects;
Mr. A. G. Derbyshire, (R. Matthew, Johnson-Marshall & Partners)

Nominated by the Town Planning Institute;
Mr. L. G. Vincent, (Vincent, Gorbing & Partners)

Nominated by the Institution of Highway Engineers;
Mr. T. S. Sinclair, (Past President, Institution of Highway Engineers)

Nominated by the National and Local Government Officers Association;
Mr. J. Lancaster, (formerly NALGO Organising Officer for transport staffs)

The following members of the Group were appointed in an individual capacity.

Prof. M. E. Beesley,	(London Graduate School of Business Studies);
Mr. R. F. Bennett,	(Planning Member, London Transport Executive);
Dr. M. Blaug,	(Institute of Education, London University);
Prof. W. F. Cassie,	(Professor of Civil Engineering, Newcastle University);
Mr. A. R. Dunbar,	(Chairman, National Carriers Ltd.);
Mr. A. Goldstein,	(Messrs. R. Travers Morgan and Partners, Consulting Engineers);
Mr. B. V. Martin,	(Chief Engineer, Dept. of Highways & Transportation, Greater London Council);
Mr. J. H. Robertson,	(Director, Inter-Bank Research Organisation).

MEETINGS AND DISCUSSIONS

During the course of the Inquiry, I met representatives of professional institutes, visited a number of local authorities and universities and had discussions with various individuals both in this country and the United States.

These are all listed below.

(i) Professional institutes:

Institution of Civil Engineers
Institution of Municipal Engineers
Town Planning Institute

(ii) Local authorities:

*Birmingham C.B. (Mr. T. H. Parkinson, Clerk; Mr. N. Borg, Engineer and Planner; Mr. W. G. Copestake, Transport Manager).

Coventry C.B. (Sir Charles Barratt, Town Clerk; Mr. T. Gregory, Planner; Mr. J. D. Hender, Treasurer; Mr. N. McDonald, Transport Manager; Mr. N. Rayman, Engineer).

Gateshead C.B. (Mr. J. W. Radcliffe, Engineer).

Leeds C.B. (Mr. C. G. Thirlwall, Engineer/Planner; Mr. E. W. Stanley, Architect).
Liverpool C.B. (Mr. T. Alker, Clerk; Mr. F. C. Amos, Planner; Mr. N. H. Stockley, Engineer; Mr. F. Clayton, Deputy Transport Manager).
Leicester C.B. (Mr. R. Thornton, Clerk; Mr. W. Shirrefs, Engineer; Mr. J. Sabey, Deputy Planner; Mr. L. H. Smith, Transport Manager).

Manchester C.B. (Mr. G. C. Ogden, Clerk; Mr. J. Hayes, Engineer; Mr. J. S. Millar, Planner; Mr. R. F. Bennett, Transport Manager).

Newcastle upon Tyne C.B. (Mr. W. F. Harris, Town Clerk; Mr. W. Burns, Planner; Mr. D. T. Bradshaw, City Engineer).

Plymouth C. B. (Mr. S. Lloyd Jones, Clerk; Mr. J. Ackroyd, Engineer and Surveyor; Mr. C. Gimingham, Planner; Mr. F. Baron, Deputy Transport Manager).

(iii) Individuals seen in this country (excluding officials):

Mr. D. Bayliss, Centre for Environmental Studies.
Professor W. Birch, Department of Geography, Leeds University.
Professor C. Buchanan, Professor of Transport, Imperial College, London.

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*During the course of my visit to Birmingham I also met Chief Officers from a number of other West Midland authorities. These included Mr. S. Jobling, Transport Manager, West Bromwich C.B.; Mr. F. Jepson, Surveyor, Staffordshire; Mr. H. Schofield, Engineer, Wolverhampton C.B.; Mr. D. M. Waite, Engineer, Warley C.B.; Mr. D. S. Warren, Engineer, Dudley C.B.; Mr. H. M. Watson, Planner, Worcestershire; and Mr. G. Whitehouse, Engineer, Walsall C.B.

Professor A. H. Chilver, Director, Centre for Environmental Studies.
Mr. F. P. Cook, Principal, British Transport Staff College.
Mr. E. R. Copleston, Secretary, University Grants Committee.
Professor T. Constantine, Professor of Civil Engineering, University of Salford.

Dr. A. F. Earle, Principal, London Business School.

Mr. J. W. Glendinning, Chief Training Officer, Local Government Training Board.
Mr. R. Griffiths, University Grants Committee.
Professor K. Gwilliam, Centre for Transport Studies, Leeds University.

Mr. B. Helm, Director, Merseyside Land Use/Transportation Study.
Mr. F. D. Hobbs, Senior Lecturer, Department of Transportation and Environmental Planning, Birmingham University.

Mr. O. A. Kerensky, Messrs. Freeman Fox, Wilbur Smith and Associates.
Professor J. Kolbuszewski, Department of Transportation and Environmental Planning, Birmingham University.

Mr. D. Lofts, Director, Local Government Training Board.
Professor N. Lichfield, Past President, Town Planning Institute.

Mr. C. Jolliffe, Science Research Council.
Mr. D. McCorquodale, Project Manager, Manchester Rapid Transit Study.
Lord Morris, Chairman, Local Government Training Board.
Professor A. J. Murphy, Principal, Cranfield College of Aeronautics.

Professor C. A. O'Flaherty, Centre for Transport Studies, Leeds University.

Mr. H. C. Rackham, Social Science Research Council.
Mr. B. D. Richardson, Senior Lecturer, Department of Transportation and Environmental Planning, Birmingham University.

Professor R. J. Smeed, Professor of Traffic Studies, University College, London.
Sir Roger Stevens, Vice-Chancellor, Leeds University.
Mr. P. F. Stott, Director of Transportation, G.L.C.
Professor A. Stratton, Professor of Mathematics, Cranfield College of Aeronautics.

Mr. J. O. Tressider, Messrs. Freeman Fox, Wilbur Smith & Associates.
Dr. J. Tindall, School of Traffic Engineering, University of New South Wales.

Mr. R. Ward, Research Adviser, British Transport Staff College.
Professor T. E. H. Williams, Professor of Civil Engineering, Southampton University.
Mr. E. R. Williams, Divisional Manager, London Midland Region, British Rail.
Sir John Wolfenden, Chairman, University Grants Committee.

(iv) Individuals seen in the United States:

Dr. J. A. Bailey, Northwestern University and Transportation Centre.
Mr. H. W. Bruck, Massachusetts Institute of Technology.

Dr. L. Cole, Department of Housing and Urban Development.

Dr. Fisher, Resources for the Future Inc.
Professor A. Fleisher, Massachusetts Institute of Technology.

Mr. D. J. Goldberg, Commissioner of Transportation, New Jersey.

Professor B. Harris, University of Pennsylvania.

Professor W. N. Kennedy, I.T.T.E., University of California.
Mr. R. A. Keith, Alan M. Voorhees and Associates Ltd.

Mr. G. E. Marble, Bureau of Public Roads, Washington.
Professor D. F. Marble, Northwestern University and Transportation Centre.
Professor M. Manheim, Massachusetts Institute of Technology.
Dr. R. Mitchell, University of Pennsylvania.
Mr. K. Norton, Regional Planning Association.

Mr. B. L. Palumbo, Department of Transportation, New Jersey.
Mr. B. Pushkerev, Regional Planning Association.

Mr. P. W. Shuldiner, North East Corridor Project.
Mr. J. Smith, Wilbur Smith & Associates.

Mr. A. M. Voorhees, Alan M. Voorhees and Associates Ltd.

Mr. Wachs, Department of Housing and Urban Development.
Mr. E. M. Whitlock, Wilbur Smith & Associates.
Mr. L. Wingo, Resources for the Future Inc.
Professor R. D. Worrall, Northwestern University and Transportation Centre.

Dr. R. M. Zettel, Bay Area Transportation Study.

(v) Officials (of the Ministry of Transport unless otherwise stated):

Mr. J. Berry.
M. F. J. Best, D.R.E., East Midlands.

Dr. G. Charlesworth, Deputy Director, Road Research Laboratory.

Mr. W. Burns, Chief Planner, Ministry of Housing and Local Government.

Mr. J. F. Embling, Department of Education and Science.

Mr. K. G. Forecast, Chief Statistician.
Mr. C. Foster, Director-General of Economic Planning.

Mr. C. W. Gair, D.R.E., Northern.
Mr. J. Garlick.

Mr. W. G. Harris, Director-General of Highways.
Mr. L. P. Hubbard, D.R.E., South West.

Mr. J. Locke.

Mr. D. J. Lyons, Director, Road Research Laboratory.

Mr. J. D. Jones.

Mr. W. M. Ogden, Ministry of Housing and Local Government.

Mr. A. J. Rosenfeld.

Mr. R. J. Sansome, D.R.E., West Midlands.
Mr. P. R. Sheaf.
Mr. R. Spence.

Mr. J. D. Wallace, D.R.E., North Western.
Mr. A. Wilson, Mathematical Advisory Unit.
Mr. J. N. Wood.

URBAN TRANSPORT MANPOWER INQUIRY

REPORT ON

FACT-FINDING EXERCISE

by

B. A. C. Lloyd

P. J. Radley

P. A. Toole, C.Eng., M.I.C.E., M.I.H.E.

URBAN TRANSPORT MANPOWER INQUIRY

REPORT ON FACT-FINDING EXERCISE

Part 1. Background to the exercise.

Part 2. The exercise.
(1) The sample of local authorities.
(2) The questionnaire.
(3) Follow-up visits and reports.

Part 3. Content and performance of the traffic/transport job.
(1) The internal organisation of local authorities.
(2) Relations with other local authorities and the Ministry of Transport.
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Part 4. Engineering manpower.
(1) Engineers.
(2) Engineering technicians.
(3) The balance between engineers and technicians.
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(1) Planners and planning technicians.
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(3) Economists.
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Appendix A. The fact-finding questionnaire.
Appendix B. The report form used for follow-up visits.
Appendix C. The C.E.I.'s definition of the engineer and technician.
Appendix D. Engineers employed on traffic/transport work.
Appendix E. Technicians employed on traffic/transport work.
Appendix F. Engineers and technicians needed at different working ratios.

Acknowledgement

The local authorities we visited are listed in part 2(1) of the report, but otherwise we have not referred to them by name. We would however like to take this opportunity of thanking them all for their willing co-operation and frankness, without which this report could not have been written.

PART 1. Background to the exercise

1.1.1. This report contains the result of a fact finding inquiry into the manpower now available in local government for handling the traffic/transport job; and the deficiencies which local authorities see for the immediate future. But the traffic/transport responsibilities of local authorities are, at present, in a state of evolution (as indeed they have been for some years past); and if and when local government is reorganised in order to give local authorities areas better suited to the needs of the job, it will assume, especially in the congested urban areas, a very different dimension. What is emerging is the need for comprehensive transport planning; that is to say, the planning not only of highways, traffic movement, public transport and car parking, but also of the balance to be aimed at between the various travel modes (car, bus, rail, etc.) and the means by which this can be achieved.

1.1.2. So, in making our inquiry we looked at the existing manpower situation not only against the concept of the job to be done as it is generally seen now (largely a job of trying to create an adequate highway system), but also against this wider concept of the need for comprehensive transport planning. To this extent we therefore relate what authorities are doing now to what they should ideally be doing, given suitable boundaries and a proper allocation of responsibilities. This means that some of our comments may sound like criticisms. This was not our intention, for at the present time authorities have neither the areas nor the capacity that this wider approach demands.

1.1.3. Transport planning is, of course, very closely related to land use planning – is indeed an integral part of it. We did not look at the land use planning work of local authorities in any detail, but we did ask authorities about their present organisation for transport planning and for details of the staff of all kinds that is engaged on it, and the information given to us under this head is covered in our report.

1.1.4. We looked not only at the manpower position but also at the organisation of the authorities for handling their traffic/transport work. This was necessary because the way in which they are organised to do this work has an important bearing on the manpower involved.

1.1.5. One last comment we would make by way of introduction, is that in the counties the fact that highway, traffic and parking powers are divided between county councils and second tier authorities is a source of particular difficulty. The overall result is a patchwork of responsibilities which calls for detailed consultations between the two tiers of local government, the consequences of which are discussed in part 3(2) of the report.

PART 2. The exercise

(1) *The sample of local authorities*

2.1.1. At the first meeting of the advisory group several members stressed the importance of getting as much factual information as possible about the existing manpower position on traffic and transport in local authorities at the present time, and it was agreed that a fact finding exercise was necessary. Although a much larger sample would have been preferred, it was decided, in view of the time and personnel available for the exercise, that the sample would have to be limited to less than forty mainly urban authorities. Within this constraint a sampling scheme was designed which would:

(i) enable us to assess with fair accuracy the position in the county boroughs and the four most densely populated counties;
(ii) provide some comparative information on other counties and claiming authorities.

2.1.2. The sample was constructed as follows:—

(a) *Counties*
(i) All four counties with a density of over 1,000 persons per square mile.
(ii) One in four of those counties with a density of between 600 and 1,000 persons per square mile.
(iii) One in twelve of those counties with a density of less than 600 persons per square mile.

(b) *County boroughs*
(i) All six county boroughs with more than 400,000 inhabitants.
(ii) One in four of those authorities with between 200,000 and 400,000 inhabitants.
(iii) One in twelve of the remainder.

(c) *Claiming authorities i.e. non-county boroughs and urban districts*
(i) Two claiming authorities in each of the counties with population densities of over 1,000 persons per square mile.
(ii) One claiming authority in each other county included in the survey.

2.1.3. Authorities were chosen at random where choice in a particular category was possible, and with one exception all those approached agreed to help. This authority was a county borough with more than 400,000 inhabitants, so the next largest county borough that would not otherwise have been included in the survey was approached. The number of sample authorities was in fact reduced to 35 because there was no claiming authority in Devon, one of the counties chosen under *(a)* (iii) above.

2.1.4. The full list of the 35 authorities taking part in the survey was as follows:—

(a) *Counties (9)*
(i) Surrey, Lancashire, Hertfordshire, Cheshire.
(ii) Durham, Derbyshire, West Riding.
(iii) Devon, Hampshire.

(b) *County boroughs (14)*
(i) Birmingham, Liverpool, Manchester, Leeds, Sheffield, Nottingham.
(ii) Coventry, Leicester, Sunderland.
(iii) Blackburn, Hastings, Norwich, Reading, Southend.

(c) *Claiming authorities (12)*
(i) Guildford, Walton and Weybridge (Surrey), Leigh, Widnes (Lancashire), St. Albans, Hitchin (Herts.), Crewe, Macclesfield (Cheshire).
(ii) Houghton-le-Spring (Durham), Ilkeston (Derbyshire), Goole (West Riding).
(iii) Havant and Waterloo (Hampshire).

2.1.5. The exercise was conducted in two stages:
(i) the completion by each local authority of a questionnaire;
(ii) a follow up visit to each authority to see how manpower was actually being used.

(2) *The questionnaire*

2.2.1. The questionnaire sought to provide a full factual picture of the manpower, present and future workload, and organisation of the particular authority in the traffic and transport field. The questions ranged over its committee structure and internal organisation, expenditure on highway and traffic schemes, estimates of future workloads, its manpower training programme, and a complete analysis of the professional and technical staff employed on traffic and transport work. A copy of the questionnaire is at appendix A. Where staff did more than one of the four broad sorts of traffic/transport work or did some work outside the traffic/transport field, they were counted according to the average amount of time spent on each sort of work. A value of one third was counted where a man was engaged for less than half of his time, and a value of two-thirds where he was engaged for half or more of his time, providing that in no case did any individual count as more than one unit overall. We recognise the arbitrariness of this, but are convinced that it is the best representation of the data that can be made bearing in mind the difficulty of assigning a person's time accurately between jobs and the fact that in successive weeks an individual's work may vary markedly in content.

2.2.2. The final form of the questionnaire was decided after discussions with various members of the advisory group, and those members who were local authority engineers or surveyors were good enough to test an earlier version of the questionnaire and suggest a number of improvements. The statisticians of the Ministry of Transport and the Ministry of Technology also offered valuable advice on the form of the questionnaire and the wording of particular questions.

2.2.3. The final version of the questionnaire as used in the survey enabled us, we believe, to get a full and accurate picture of each authority. However, as a safeguard we ran through the completed questionnaire with the chief officers concerned during the follow-up visit to clear up any difficulties. Some authorities were unable to answer all the questions, but where sufficient replies were received, the Ministry of Transport's statisticians have calculated estimates – judged to be reliable within plus or minus 10 per cent – which relate to all county borough authorities in England, 'and they have also assisted us in the interpretation of our results.

(3) *Follow up visits and reports*

2.3.1. As soon as possible after the return of the completed questionnaire, we visited the authority concerned. The object of this visit was to see how work was organised with particular reference to the actual jobs being done by individual engineers and technicians and the chains of command and consultation being used, and to get some idea of the authority's overall approach to traffic/transport work and the calibre of the personnel employed.

2.3.2. The pattern of each visit was similar. In the morning we talked with the chief officers principally concerned (i.e. the engineer or surveyor, the planner, and where the authority ran its own bus fleet, the transport manager) or their deputies to get their views on anything they considered relevant to traffic/transport manpower. By focussing discussion on the questionnaire we were able to check that we appreciated the significance of their written answers.

2.3.3. In the afternoon, individual engineers, engineering technicians and occasionally others working in the traffic/transport field were interviewed, more or less at random, usually at their desks or drawing boards, and as a rule without senior staff in attendance. They were encouraged to talk freely about the work on which they were currently engaged, the content of their work in general, the extent to which they were supervised and in turn supervised others, and the general functioning of the office. Interviews lasted on average about 20 minutes. Those with junior staff tended to be a little shorter; those with more senior staff somewhat longer. One thing which often made our assessment of the interview difficult was the lack of any clear distinction in duties and responsibilities as far as the authority was concerned between a professional engineer and a technician, the emphasis being on gradings and numbers rather than the character and demands of the work. This is discussed more fully in part 4 of the report.

2.3.4. We attempted to guard against the subjectivity inherent in the visits and their necessary superficiality in three ways:–

(i) by ensuring the greatest possible continuity, Mr. Toole going on all visits and being accompanied by either Mr. Lloyd or Mr. Radley;

(ii) by devising a standard report form to ensure consistency in reporting, which the follow-up team completed together the day after the visit. A copy of this form is at appendix B;

(iii) by arranging a series of trial visits to other authorities before going to the sample authorities. This allowed us to get the 'feel' of follow up visits and some basis for comparison, and also provided an opportunity for testing our report form. Authorities who co-operated in this way and to whom our thanks are due are Bournemouth C.B.C., Brighton C.B.C., Colchester B.C., Luton C.B.C, Portsmouth C.B.C., Southampton C.B.C. and Woking U.D.C.

PART 3 Content and performance of the traffic/transport job

(1) *The internal organisation of local authorities*

3.1.1. Leaving aside committees dealing with finance, establishments, etc., and those dealing with land use planning, the number of committees directly concerned with the traffic/transport job varies in the sample authorities as follows:–

	Number of committees		
	One	Two	Three
County councils	8	1	0
County boroughs	1	11	2
Second tier authorities	9	3	0

All but one of the authorities running buses have a separate public transport or trading committee, and five authorities have a separate traffic/road safety committee.

3.1.2. In seven instances chief officers suggested that their authority's committee structure was cumbersome and made for difficulties. Often it was stated that common membership of committees reduced the possibility of friction and delay. This common membership was however much more in evidence between highways and traffic committees than between these committees and the public transport committee.

3.1.3. No attempt was ever made to justify a separate traffic/road safety committee, nor were any compelling arguments put forward for separate public transport committees. On the contrary, there seem to be distinct advantages in having a single committee covering the whole traffic/transport field. Where authorities feel unable to follow this course, it is essential that ties between committees should be strengthened, and this applies particularly to public transport committees.

3.1.4. Six of the 35 authorities have co-ordinating committees of chief officers with the clerk assuming a broad chief executive role, and a further seven authorities were contemplating structural changes at the time we visited them. In three authorities the chief officers concerned with traffic/transport matters are formally constituted as a working committee. In many cases, joint submissions are made to the highways and planning committees by the engineer/surveyor and planner, but links with the public transport manager are sometimes quite tenuous, partly because he reports to a separate, largely self-contained committee and partly because he is almost always housed away from his colleagues in the main council offices. This isolation of the public transport manager must be broken down by regular meetings with other chief officers, and stronger working links between his department and others.

3.1.5. Nine of the sample authorities have some formal structure for transport planning. In one case this was a full time inter-disciplinary team containing a wide range of basic skills and working together on comprehensive transport planning. In three cases transport planning was in the hands of a chief officer committee; in two authorities there were permanent working links between different departments or sections; and in three other authorities there was a small section or sub-section within either the engineer's or the planning department. Thus overall nearly 40% of the top tier authorities in the sample have some form of transport planning organisation.

3.1.6. The department primarily concerned with the traffic/transport job and on which we concentrated our attention was that of the engineer/surveyor. The highways function comes within its ambit, and on the evidence of the internal organisation of the sample authorities, its importance is well recognised. In each sample authority where the engineer's department is divided into functional sections (that is, in all but eight second tier authorities) there is at least one section specifically devoted to highway work. Traffic engineering and traffic management also comes under the engineer/surveyor, and again its importance is widely recognised, with 21 of the 23 top tier authorities in the sample having separate sections, the others having sub-sections within a main highways section devoted to this work.

(2) *Relations with other local authorities and the Ministry of Transport*

3.2.1. Although we have no way of quantifying the productivity increase that would result from a pattern of local government which was suited to the needs of the total traffic/transport job, there can be no doubt that it would be considerable, and that much of this gain would be at quite senior levels. An indication of the degree of overlapping of powers and functions in the sample authorities is given by the fact that all but one of the nine county councils have some second tier authorities with highway and traffic powers; only two have less than ten such authorities; four have between 10 and 20; and two have over 30.

3.2.2. No absolute comparison between county boroughs and second tier authorities is possible because the range of work they do is not identical. Moreover to look at any one year alone fails to take account of work planned in that year but executed later. However despite these factors, a composite example drawn from the sample data does give some indication of the difference in output between county boroughs and second tier authorities:–

	Traffic management			Highway work		
		Expenditure			Expenditure	
	Total engineering manpower employed	1967/8 £000s	1967/8 £000s per man	Total engineering manpower employed	1967/8 £m	1967/8 £000s per man
County boroughs	106	3175	29.9	523	32.9	63
Second tier authorities	21	220	10.3	59	2.2	37

This suggests that output per man on highway work is nearly twice as high in the county boroughs as it is in the second tier authorities, and on traffic management it is nearly three times as high, and it must be remembered that these figures take no account of county council manpower working on second tier authority schemes.

3.2.3. The reasons for this contrast are not difficult to find, for they are a direct consequence of the overlap of highway, traffic and parking powers in the counties. which means that in general second tier authorities must get the county's detailed agreement to schemes before proceeding. Much prepatory work at the lower level is wasted either because schemes which are begun by second tier authorities can't be accommodated within the county's budget, or because there has not been broad agreement to the scheme before detailed work is put in hand; and much effort is wasted because the lower tier authority does not know when a scheme will be sanctioned and what timescale will be adopted by the top tier authority, and so cannot plan workloads effectively. Any long term solution of this problem goes far beyond this exercise and must depend upon the reorganisation of local government, but what is needed in the interim period before any long term solution can be implemented is a much simpler method of work. The way to do this is for the county council to develop a comprehensive strategy which takes full account of financial and manpower constraints at both levels, which is settled in advance with the second tier authorities, which then recognise that they have to work wholly within this framework.

3.2.4. Central government was often mentioned as a major cause of delay and uncertainty. When road schemes are referred to Ministry of Transport headquarters, the multiple vetting they receive takes from three to six months. However, a review of the Department's regional structure has recently taken place, and proposals for far greater delegation to Divisional Road Engineers are being considered. It is hoped that as a result, far fewer schemes will need to be referred to headquarters and that those that are will be cleared much more quickly than at present.

(3) *Relations with public transport operators*

3.3.1. Transport managers have to maintain close working links with other operators in adjacent or overlapping areas. Frequently there are two or three such operators, but in three sample authorities there were more than five of them. However links between local authorities and bus operators are not at all close when the authority does not itself run buses. Meetings are infrequent, and local authorities tend to pay insufficient regard to the operating requirements of buses. There is evidence of this even when the local authority does itself run buses; it is much more marked when it does not.

3.3.2. Contacts between authorities and British Rail tend to be infrequent, and British Rail were widely criticised for failing or being very slow to respond to advances whether they were to discuss the provision of parking facilities at or near a station, the co-ordination of bus and train schedules, the purchase of land no longer used by British Rail, or the repair of bridges and level crossings. Another complaint made about British Rail was that it was often not clear which office, department or officer of the Board was dealing with a particular matter.

(4) *How the work is done*

3.4.1. In general top tier authorities lack the areas and internal organisation necessary for effective transport planning, and in consequence most authorities have no comprehensive transport plan, although planning is done on several fronts.

Highway planning is geared to the Ministry's rolling programme; and all authorities of more than 50,000 population and all traffic and parking authorities in the conurbations are now preparing traffic and transport plans in accordance with circular 1/68. Within its own limited sphere, public transport planning is sometimes very well done, but often it is superficial and based on narrow operating considerations.

3.4.2. A land use/transportation study can and often does draw all these threads together, but tends to fall down as a means of effective transport planning because:—

(i) in large urban areas, the study inevitably embraces a number of authorities, which in turn makes it somewhat remote from each one of them. Also there are problems of inter-dependence made worse by the complex of boundaries and powers;
(ii) most local authorities lack the expertise to make full use of the study findings;
(iii) most authorities are so preoccupied with day to day matters that long term planning is given a low priority.

3.4.3. Local authorities are themselves powerless to overcome the most difficult obstacles to effective transport planning, but they can help themselves as far as manpower and organisation are concerned. In the urban areas where the transport problem is most acute, the most pressing need is for major authorities, or groups of adjacent authorities which form what is essentially one area from the traffic/transport point of view, to build up transport planning units which clearly reflect the multi-disciplinary nature of the job, and in some areas this need is already being recognised.

3.4.4. The predominance of the traditional highway function comes out clearly from the way local authorities use their traffic/transport manpower. In the counties over 90% of the engineers in this field are doing highway work, and in the county boroughs and second tier authorities the figures are 73% and 65% respectively. Most professional vacancies are also in highway work. Authorities are generally reluctant to use consultants on highway work, the view being widely held that they should only be employed on highly expert work or when there is a peak of activity with which an authority cannot cope on its own. Only four of the thirty five sample authorities are regular users of consultants and a further eleven are occasional users, but it is noticeable that it is the larger county boroughs and the more densely populated counties which use them most.

3.4.5. We sought to establish whether the sample authorities measure and test their efficiency in highway construction by the use of yardsticks of output per man. Sixteen of the 23 top tier authorities in the sample use yardsticks, but in most cases it isn't easy to say whether they are an applied management tool or a statistic produced for the benefit of elected representatives. Expressing yardsticks on the common basis of total professional salaries as a percentage of the total value of construction work, most counties quote yardsticks in the range 1 – 2% on basic construction work, but may go up to 5½% for more complex structures. Most county boroughs quote basic figures in the range 1 – 2½%, but again may go up to 5½%. We would hesitate to draw conclusions from these figures, but we are sure that yardsticks have a considerable part to play in effective financial and manpower planning, and that a much greater exchange of information and experience between authorities would benefit all concerned.

3.4.6. Great differences in the size and complexity of schemes make yardsticks of output per man even more difficult to apply to traffic schemes. We were frequently told that substantial increases in output were possible with very little increase in manpower, and the recent experience of many of the sample authorities bears this out. This suggests that many local authorities, particularly second tier authorities, could do much more with their existing staff provided it were used on the lines recommended in para. 3.2.3. above. Unless there is to be a marked redeployment of manpower, the amount of traffic management done in the counties can only be significantly increased by the more efficient use of those engaged on it in the second tier authorities.

PART 4 Engineering manpower

(1) *Engineers*

4.1.1. In the questionnaire which the sample authorities completed, we distinguished between 'engineers', that is persons with a university degree or who are members of one of the professional institutions constituting the Council of Engineering Institutions (C.E.I.), and 'engineering technicians' i.e. technical sub-professional staff doing jobs requiring technical expertise or qualifications falling short of full professional status. This distinction provided no difficulty except in the case of partly qualified persons, when we had to decide whether the person concerned should count as an engineer or a technician. The factors taken into account in such cases were whether he was still actively studying, his seniors' views on his determination and ability to qualify, his age, and the work on which he was engaged.

4.1.2. In appraising the work done by engineers and technicians we were guided by the C.E.I. syllabuses and the definitions of the engineer and technician adopted by the C.E.I. and the Engineering Societies of Western Europe and the U.S.A. (see appendix C). We assumed that the capabilities of both engineers and technicians should be fully used, and to get an appreciation of the way in which technicians can be employed in practice, and the sort of working relationships which can develop between engineers and technicians, we first visited a local authority and a firm of private consulting engineers known to train and employ technicians extensively on highway and traffic work. These were the Department of Highways and Transportation of the Greater London Council and Messrs R. Travers Morgan and Partners, to both of whom our thanks are due. We were then able to hypothecate a range and standard of work in the traffic/transport field of which a fully trained technician would be capable, and this was our datum line in judging the work of engineers and technicians in the sample authorities and forming a view on what the ratio of engineers to technicians ought to be.

4.1.3. We found three basic types of engineering expertise in the sample authorities: civil, electrical and mechanical (for simplicity we use the term 'civil engineer' to cover both municipal and structural engineers). Almost all civil engineers are engaged on highway and traffic work. Mechanical engineers are all employed on public transport operation. Some electrical engineers work in traffic engineering, but the majority are employed on highway lighting, most larger authorities having lighting specialists.

4.1.4. The total number of engineers doing traffic/transport work in the 79 English county boroughs and the four most densely populated counties is shown in appendix D. As explained in part 2, our sample of less densely populated counties and second tier authorities did not enable us to estimate figures for these types of authority for the country as a whole. However the evidence of the sample, showing a breakdown of engineering manpower in the 12 second tier authorities and five less densely populated counties, is also included in appendix D to provide some basis of comparison.

4.1.5. Of the 35 sample authorities only 12 had no vacancies for engineers in the traffic/transport field, and of these seven were second tier authorities. The vacancies on establishment in the other 23 authorities were as follows:—

Twelve authorities had 1-5 vacancies
Four authorities had 6-10 vacancies
Three authorities had 11-20 vacancies
Four authorities had more than 20 vacancies

The four authorities with more than 20 vacancies were all county councils and in large part this situation reflects the establishment of the Ministry's road construction units. The authorities with more than five vacancies were either county councils or county borough councils. In fact no second tier authority had more than two vacancies. Overall there are 66 vacancies for engineers for traffic/transport work in the four most densely populated counties and an estimated 200 vacancies in county boroughs. This is an indication of the extent to which authorities see themselves as being short of engineers, but these figures take no account of vacancies outside the traffic/transport field or in the other counties, second tier authorities, the G.L.C. and the London boroughs. On the basis of their 1968 tri-ennial manpower survey, the Ministry of Technology put the overall short-fall of engineers, technologists and scientists in local government at 1890.

4.1.6. In addition to this short-fall of engineers there is also an appreciable turnover of staff. This could not be easily quantified, but 20% a year was a typical figure mentioned by chief officers, and our observations confirm a turnover of engineering staff of this order. One disturbing feature of the turnover of staff is the time that vacancies often remain unfilled. At senior assistant level (i.e. section leader) they may remain unfilled for six months, and although more junior posts stay vacant for much shorter periods, chief officers frequently complained to us about the calibre of applicants for such posts. The explanations put forward for this state of affairs included a general countrywide shortage of professional engineers aggravated by the establishment of the road construction units; better pay, prospects and more interesting work in industry, with consultants, or overseas; and local goverment's poor image as an employer.

4.1.7. Pay is an emotive factor, but it was put to us that the widely applied rule by which the deputy engineer receives two-thirds of the chief engineer's salary exacerbates the situation by cramping salary scales below deputy engineer level, and so making it difficult to recruit staff at senior assistant level. We did not look at pay structures and so cannot comment on this, but we understand that the Joint Negotiating Committee for Chief Officers of Local Authorities regard two-thirds as a minimum and three-quarters as a maximum for the pay of deputy chief officers. Certainly the three-quarters figure would allow more attractive salaries to be offered at senior assistant level, but from our survey it is quite clear that many authorities treat two-thirds as a maximum figure.

4.1.8. The chief officers of the sample authorities were asked to forecast their highway expenditure up to 1976/7 and traffic management outlays up to 1971/2, and were then asked to say what staff they would need for these programmes. In making their forecasts they were asked to assume whatever improvements in engineering techniques they thought would come about, and also that they had no vacancies on current establishment, i.e. any increases suggested are over and above current establishments including unfilled posts. One thing that emerged from this was that authorities are quite clear that they will need to do an increasing amount of work in the years ahead. (Their figures suggest a countrywide growth of expenditure at current prices of about 8% a year on highways and 15% a year on traffic management).

4.1.9. The breakdown of forecasts of the engineers needed for future highway work was as follows:–

	The authority thought that:–					The authority did not know whether or not an increase would be necessary
Type of authority	no increase in engineers would be necessary	an increase of 1–10 engineers would be needed	an increase of 20–50 engineers would be needed	an increase of more than 50 engineers would be needed	some increase of engineers would be needed but it was impossible to quantify it	
County boroughs	3	6	1	0	3	1
Counties	2	1	2	3	1	0
Second tier authorities	5	5	0	0	0	2
TOTAL	10	12	3	3	4	3

4.1.10 The breakdown of forecasts of engineers needed for future traffic management work was as follows:–

Type of authority	The authority thought that:– no increase in engineers would be necessary	an increase of 1–5 engineers would be needed	an increase of 6–10 engineers would be needed	some increase of engineers would be needed but it was impossible to quantify it.	The authority did not know whether or not an increase would be necessary
County boroughs	2	7	0	2	3
Counties	2	5	2	0	0
Second tier authorities	7	3	0	0	2
TOTAL	11	15	2	2	5

4.1.11. The overall picture is therefore of most authorities seeing a clear need for increases of staff for the future over and above the existing vacancies already referred to. However the forecasts of future manpower needs were too variable, and far too many of the sample authorities were unable to quantify their answers, to make it at all possible to estimate the total number of additional engineers that local authorities think they will need in the near future. The wide variation in the answers suggests that in general little thought is at present being given to the manpower implications of increased future workloads.

(2) *Engineering technicians*

4.2.1. The term 'engineering technician' is explained at paragraph 4.1.1. above. Hitherto technicians have been people without any particular qualification, and the staffing situation in the sample authorities reflects this fact. However since 1965 when the C.E.I.'s technician training scheme was established, there has been a recognised technician qualification available. Although it will be some years before the impact of this is fully felt, its importance is not in doubt, for it will completely transform traditional working patterns by creating a clearly recognisable capability to supplement and support the professional engineer. It is against this background that the present situation in local authorities must be seen.

4.2.2. The total number of technicians doing traffic/transport work in the county boroughs and the four most densely populated counties is shown in appendix E, and figures for the 12 second tier authorities and five less densely populated counties in the sample are also included for comparison. Of the 35 sample authorities only 14 had a full establishment of technicians for traffic/transport work, and of these eight were second tier authorities. The vacancies in the other 21 authorities were as follows:–

Fourteen authorities had 1-5 vacancies

Three authorities had 6-10 vacancies
Four authorities had 11-20 vacancies

Overall there are 11 vacancies in the four most densely populated counties and an estimated 100 vacancies in the county boroughs.

4.2.3. Looking to the future, forecasts of additional technician manpower for highway work were as follows:—

	The authority thought that:—				
Type of authority	no increase in technicians would be needed	an increase of 1–10 technicians would be needed	an increase of more than 10 technicians would be needed	some increase of technicians would be needed but it was unable to quantify it	the authority did not know whether or not an increase would be necessary
County boroughs	3	7	0	3	1
Counties	3	2	3	1	0
Second tier authorities	8	2	0	0	2
TOTAL	14	11	3	4	3

4.2.4 Additional technician manpower needs for traffic management were forecast as follows:—

	The authority thought that:—			
Type of authority	no increase in technicians would be needed	an increase of 1–10 technicians would be needed	some increase of technicians would be needed but it was impossible to quantify it	the authority did not know whether or not an increase would be necessary
County boroughs	3	6	2	3
Counties	3	6	0	0
Second tier authorities	7	3	0	2
TOTAL	13	15	2	5

4.2.5. Again, these forecasts are too variable and imprecise to make it possible to estimate the total number of additional technicians that local authorities think they will need in the near future for highway and traffic work. However they are significant in highlighting the present emphasis on the use of engineers rather than technicians, and the fact that authorities are thinking predominantly of meeting increased future workloads by employing engineers rather than technicians. Not only do present vacancies for engineers in the county boroughs and four most densely populated counties outnumber vacancies for technicians by more than 2:1, but looking to the future, twice as many of the sample authorities foresee a substantial additional need for engineers as foresee a substantially greater use being made of technicians.

4.2.6. Three broad categories of technician are found working in the sample authorities:—

(a) those who set out to qualify as professional engineers but fail to do so, or who for some reason terminate their studies at an interim stage;
(b) unqualified persons with some technical knowledge in the loosest sense, who are often recruited from declining industries, or who have some experience of a particular aspect of the work e.g. retired policemen with knowledge of traffic matters;
(c) those recruited from outside with O.N.C. or H.N.C. qualifications, e.g. we found a number of technicians who had come to local government from the Ordnance Survey.

4.2.7. As far as we could ascertain about 50% of technicians had some qualification. We met only two C.E.I. certificated technicians in the sample authorities, but this was not surprising as only those with ten years' experience who pass the C.E.I. interview can qualify in advance of the output of the technicians training scheme, which requires a minimum of four years work. But we did meet a number of able, experienced technicians whom we are confident could have qualified for the certificate had they felt inclined to do so. These apart, qualified and unqualified technicians showed quite different employment potential. The former can be regarded as broadly similar in potential to the certificated technician of the future, whereas the latter can in general only be employed on low standard technical work or in a very limited field. We tried to measure the extent to which the productive potential of present technicians falls below that to be expected of a certificated technician. To do this we worked from the datum line explained in para. 4.1.2. above and asked ourselves the question 'To what extent would this technician be capable of doing the sort of work in the traffic/transport field that we would expect a C.E.I. technician to do?'. The categories of response we used were 'completely', 'largely', 'to some extent', and 'hardly at all', and the percentage breakdown of the technicians seen was as follows:—

(i)	completely capable of certificated technician standard work	21%
(ii)	largely capable of certificated technician standard work	27%
(iii)	capable of certificated technician standard work to some extent	44%
(iv)	hardly capable of certificated technician standard work	8%

This suggests a marked increase in productive potential if all technicians were of certified technician standard.

(3) *The balance between engineers and technicians*

4.3.1. In looking at the use made of engineers and technicians in the sample authorities, we paid particular regard to the ratios of engineers to technicians on various types of work, and the extent to which work currently being done by engineers should and could be done by technicians. The overall ratio is roughly three chartered engineers to two technicians in the county boroughs and second tier authorities, and 5:2 in the counties, but we found wide differences between authorities and in different fields of work. In three of the 35 authorities engineers are outnumbered by technicians (usually by about 2:3) and in a further five authorities the overall ratio is 1:1. In the other 27 authorities engineers outnumber technicians, in most cases by 3:2 or 2:1, but there are four top tier and five second tier authorities with engineers outnumbering technicians by 3:1 or more, and in one county borough the ratio is 7:1.

4.3.2. We looked separately at ratios on highway and traffic work, and again they vary widely. Four of the 35 sample authorities have engineers outnumbered by technicians on highway work, broadly in the ratio of 2:3, while in five authorities the numbers are equal. In the remaining 26 authorities engineers outnumber technicians, in seven cases in the ratio of 4:1 or more. Overall the broad picture on highway work is of engineers outnumbering technicians by 2:1. The sample authorities are much more ready to employ technicians on traffic work, and a broad 1:1 ratio emerges. In ten of the 23 top tier authorities engineers are outnumbered by technicians on traffic work, but in contrast, in 11 of the 12 second tier authorities engineers outnumber technicians.

(4) *Factors affecting productivity*

4.4.1. The most apparent consequence of the vacancy situation and rapid turnover of staff already described is the extent to which part completed parcels of work are passed from one person to another often at quite short notice. Continuity is thus a major problem, and there is clearly a considerable loss in productivity because of the need for the new man to "find his way around" the particular assignment. This continuity loss is greatly exacerbated by the two tier system, and to make matters worse there are also occasions when a change in the Ministry's D.R.E. staff coincides with staff changes in the local authorities.

4.4.2. The general consequence of this is that work is essentially tackled on a day to day basis, with an 'ad hoc' approach predominating. Not only is there insufficient planning and overall co-ordination, but the internal organisation of the engineer's department is sometimes badly distorted by manpower considerations. We not infrequently found spans of control or parcels of work that were far from ideal in organisational and management terms, and which were the direct result of this hand to mouth approach. Such distortions make it impossible to plan work programmes in any detail, and records and paperwork become a burden rather than an aid to efficient working.

4.4.3. A further aspect of the way in which engineering work is done in many of the sample county boroughs and second tier authorities is that an individual engineer may switch from, say, a highway scheme in the morning to a completely unrelated municipal engineering job in the afternoon. This lack of continuity in his work often puts unfair pressures on the individual and is clearly a factor undermining productivity. Such practices usually stem from the hand to mouth approach and organisational distortions we have already described, but in some cases they are a reflection of the small size and overall workload of the authority. Work switching to the extent that it is currently practised must be very undesirable, but is largely unavoidable where authorities are too small to make greater specialisation possible.

4.4.4. The lack of a clear organisation and management structure can have an adverse effect on the careers of the individuals concerned, and is particularly damaging to young engineers. Transfers of staff at short notice between sections of the engineer's department to plug gaps can take place with little regard to a man's career development as they often do in the smaller authorities. However in contrast, a number of the larger authorities pay particular attention to career development, and go to considerable lengths to ensure that graduates joining the authority are given a proper introduction to all aspects of its work.

4.4.5. One very harmful consequence of the present situation is the gradual erosion of the engineer's managerial ability. Following the Maud Report on Management of Local Government, however, there has been increasing recognition of the management function. At present this is being felt mainly at chief officer level but it can only be a matter of time before it also begins to change management attitudes and practices within departments. In many cases the engineer is so used to doing everything himself that he is now often very unwilling to delegate quite menial jobs to junior staff even when such staff is available. But generally qualified technicians are not at this moment, and have not been in the past, readily available, and this is the nub of the problem. It means that engineers are doing a substantial amount of work which should be done by junior technical staff. With engineers spending much of their time on sub-professional work, the demand for professional staff has been inflated, and local authorities have been unable to recruit sufficient engineers to cope with the rapid expansion of highway and traffic work. Vacancies and rapid staff turnover have resulted, and have had a cumulative effect on productivity, internal organisation and the way departments are managed. Any attempts to remedy the present situation therefore depend not only on overcoming managerial weaknesses, but on developing recruitment and training policies based on the proper deployment of both engineers and technicians.

4.4.6. In most of the sample authorities, engineers and technicians have reasonable tracing support, and there seems to be sufficient clerical staff within the engineer's department. However this clerical staff does not always seem to be used as effectively as it could be. A common pattern is to concentrate all or most of the clerical staff in the engineer's department in a virtually self-contained administrative section headed by a chief clerk, who is directly responsible to the engineer. This ensures that the engineer has good clerical backing on general administrative matters; but also invariably means that clerical staff are not in close contact with the engineers immediately concerned with projects, with the result that individual engineers are effectively without clerical support, while the clerks can only take a narrow view of their jobs, and in costing and the like inevitably concentrate on financial rectitude and procedural correctness rather than on ensuring value for money. We would therefore recommend that authorities should consider a more flexible use of staff within the engineer's department as can be achieved with the employment of technical clerks, both to make that staff more effective and to ensure that individual engineers and technicians get adequate support. Another organisational feature which we think needs looking at is the practice of having the highway superintendent of the authority's direct labour force (where there is one) reporting direct to the engineer or his deputy. It seems to us that the fullest co-ordination between the sections within the engineer's department and the direct labour force can only be achieved if the highway superintendent reports direct to the particular engineer or section concerned.

4.4.7. Before passing on to our analysis of future manpower requirements, there is one other factor affecting productivity which must be mentioned — accommodation. We found far too many engineers and technicians working in inadequate surroundings, the main faults being overcrowding, poor lighting, insufficient storage space, excessive traffic noise, outdated furnishings and fittings, and in some cases the splitting of those sections within the engineer's department dealing with traffic and transport between widely separated buildings. We rated accommodation in the sample authorities as good, adequate or poor, and the breakdown of our assessments is as follows:—

	Good	Adequate	Poor
Counties	1	5	3
County boroughs	2	4	8
Second tier authorities	7	2	3

Accommodation tends to be least satisfactory in those authorities where there has been a significant increase in workload in recent years, and overcrowding is certainly the most common failing. In some cases old houses and hotels have been taken over, and not only the rooms but also landings and storage areas are being used as makeshift offices. Such arrangements contrast starkly with the excellent new accommodation that some of the sample authorities enjoy.

4.4.8. We would make two points about the standard of accommodation encountered during our visits. Firstly, as confirmed by those authorities that have recently moved to new offices, a significant productivity bonus results from working in good surroundings. Secondly, we consider that the overcrowding in some authorities had now reached such a critical stage that it is endangering future work programmes. We are well aware of the difficulties that face local authorities wanting to build new offices, but we feel bound to record that as things stand, many of the sample authorities would be physically unable to accommodate any additional staff needed to cope with an expanding programme.

(5) *The present and future manpower requirement*

4.5.1. The number of engineers and technicians working in the traffic/transport field, and the number of vacancies as indicated by and estimated from our sample results are shown at appendix F. Overall the current ratio of engineers to technicians is broadly 2:1. If it is assumed that the total engineering manpower requirement is as indicated by the sum of engineers and technicians currently employed plus vacancies, it is possible to compare the actual number of engineers and technicians employed at the present time with the number that would be needed with different working ratios of engineers to technicians. For purposes of illustration we have worked out these figures for the ratios of 1:1, 1:2 and 1:4, and these are included in appendix F. At a ratio of 1:1, the number of engineers now in post exceeds the requirement, while all authorities are short of technicians. With ratios of 1:2, and 1:4, the surplus of engineers increases, as does the shortage of technicians.

4.5.2. In order to suggest what the ratio of engineers to technicians ought to be, we related our assessments of the work actually done by the individual engineers and technicians we interviewed to the number of engineers and technicians currently employed. First of all, we got an idea of the extent to which the work currently being done by engineers could have been done by a certificated technician. To do this, we used the five categories 'completely', 'largely', 'to some extent', 'hardly at all', and 'not at all' to answer the question 'To what extent could the work being done by this engineer be done by a properly qualified technician'? In all we saw 127 engineers and the breakdown between categories was as follows:—

	Number	*Percentage*
Work completely capable of being done by a technician	4	3
Work largely capable of being done by a technician	38	30
Work capable of being done by a technician to some extent	47	37
Work hardly capable of being done by a technician	31	24
Work not at all capable of being done by a technician	7	6
	127	100

4.5.3. We accept that one cannot get an absolute division between the work requiring an engineer and that to be done by a technician. Nevertheless our findings suggest that at the very least a third, and probably nearer a half, of the work now being done by engineers should be done by technicians. Relating this to the present number of engineers and technicians engaged on traffic/transport work in the county boroughs and the four most densely populated counties by working on the basis of a 40% shift of work, suggests that the county boroughs would need over 400 fewer engineers with a corresponding increase in properly qualified technicians, and the four counties some 250 fewer engineers with an equivalent increase in technicians. In both cases the reduction in the number of engineers needed exceeds the authorities' present engineering vacancies, and the same pattern emerges in the other sample authorities. This suggests that overall there would be no shortage of engineers at the present time if they were engaged solely on work of a professional standard. To make this possible there would of course have to be sufficient technicians available to do the work that would be relinquished by engineers, and at the present time this is not so. This indication of the need for technicians highlights the long term importance of the C.E.I. technician training scheme, for it is the means by which a proper balance between engineers and technicians can eventually be struck.

4.5.4. A 40% shift of work suggests an optimum ratio of two engineers to three technicians for traffic/transport work. However, our assessments were largely based on the work done at the man's desk, and could take little account of the many ways in which time was spent on such things as discussions with representatives of other authorities and the Ministry of Transport, the preparation of submissions to elected representatives and dealing with queries from them. In practice engineers are involved much more than technicians in these jobs, the burden of which could be greatly reduced; and this would have the effect of making an even better engineer/technician ratio possible. For all practical purposes we therefore think that our analysis points to an overall engineer/technician ratio of about 1:2 – probably rather less on the more demanding aspects of highway and bridge design, and rather more on routine highway and traffic work – as being the target at which authorities should aim.

4.5.5. We have of course heard many views on what the optimum ratio of engineers to technicians should be, and perhaps not surprisingly these have varied greatly. However two points on which there is broad agreement are that the optimum ratio varies according to the type of work, and that in general there is much greater scope for the employment of technicians. Some people whose judgment we respect have suggested an overall ratio of 1:4 as ideal; others have suggested that for routine highway and traffic work it should be nearer 1:10; others have thought 1:2 the best that can be attained in local government, and it is significant that this is broadly the ratio found in the Department of Highways and Transportation of the G.L.C. while the ratio found in Messrs. R. Travers Morgan and Partners lies between 1:3 and 2:5. What is clear is that the present balance in local authorities as indicated by our sample findings is completely wrong, and that what is needed in fact is far fewer engineers, properly deployed, and a great many more technicians. Just how wrong the balance is is suggested by the figures at appendix F which show that working on a ratio of one engineer to two technicians, the county boroughs have at the present time a surplus of over 350 engineers and a need for another 700 technicians.

4.5.6. In reaching any final conclusions on the total manpower stock that will be required in the future, the following factors must be weighed in addition to those mentioned above:–

(i) ultimately most if not all technicians will have the full productive potential of certificated technicians;

(ii) the need to do some work more thoroughly or to a better standard than is currently the case. Thus it can be assumed that the engineering commitment to transport planning will increase. Also we would expect more follow-up studies on, for example, traffic management schemes than at present;

(iii) the economies of effort that would result if the dialogue between the two tiers of local government and between central and local government could be reduced;

(iv) consultants will continue to have an important part to play when authorities are faced with peaks of work or projects requiring special expertise, but we would expect the practice of using them as a regular supplement to their own work force, as is done by some authorities at the moment, to cease.

4.5.7. Each authority must review critically the content of its work to establish whether particular jobs should be done by engineers or technicians. This job evaluation should form the basis of comprehensive manpower planning which relates all aspects of staff needs (numbers, skills, recruitment, training, etc.) to the planned workload. One important element in this will be a strategy to correct the present imbalance between engineers and technicians. The shortage of technicians in the country at the moment means that this can only be done by recruiting trainees straight from school and sponsoring them on courses leading to certification, and then deploying these newly certificated technicians on the work appropriate to them.

(6) *Recruitment and training*

4.6.1. The importance of training their own engineers by sponsoring students on university sandwich courses is already recognised by 22 of the 35 sample authorities. This is, of course, in addition to the practical training given to graduate engineers recruited straight from university who have still to pass their professional interview. The sample returns suggest that county boroughs and the four most densely populated counties are between them sponsoring over 200 students on engineering sandwich courses. This suggests an annual inflow of some 50 qualified engineers a year into these authorities. Together with the recruitment of university graduates (C.E.I. records show that there are at present 600 graduates with local authorities preparing for their professional interview) this has to cover the whole range of local authority engineering activities and not just traffic/transport work, and it is plain that this inflow does not measure up to authorities' stated vacancies for engineers. However we have shown that these vacancies are a poor guide to long term needs because they fail to recognise the need for changed engineer/technician ratios. Although it will take a number of years to recruit and train sufficient technicians to correct this balance, and during that time many authorities will be very short of manpower, it is essential that authorities should avoid recruiting more professional engineers than they will need in the long term, and should recognise that the way out of their present difficulties is to take full advantage of the C.E.I. technician training scheme.

4.6.2. Most of the sample authorities send professional staff on short courses in engineering, management or computer science subjects, but only ten of the 35 felt able to release staff for courses of more than four weeks' duration. The explanation was invariably that they would like to send people on long courses but just could not spare them. Once the distortions of the present manpower situation are overcome we would therefore expect an increased demand for places on long courses, for local authorities should then find it easier to release staff to attend them.

4.6.3. The pace of change in engineering at the present time is considerable and local authorities must recognise assistance is keeping abreast of the subject as an integral part of maintaining the productivity of engineers. Only in this way will they obtain the high calibre professional engineers that they need now and are going to need increasingly in the future.

4.6.4. We were encouraged to find that 23 of the 35 sample authorities are already granting day release facilities to trainees under the C.E.I. technician training scheme. As our analysis of present technician manpower suggests, technician recruitment has hitherto been aimed primarily at declining industries, the police, etc., and few of the technicians recruited in this way have the productive potential of a certificated technician. Authorities are slowly recognising the importance of systematic technician trainee recruitment based on school leavers, but much more needs to be done, especially by those authorities without technician trainees which still rely (without much general success) on recruiting by general advertisement.

4.6.5. The breakdown of technician trainees among the 23 sample authorities with them is as follows:—

Eleven authorities have one or two trainees
Six authorities have three to five trainees
Six authorities (four counties and two county boroughs)
have more than five trainees.

C.E.I. records show that there are just over 700 technician trainees in local authorities in the country as a whole. The resultant inflow of certificated technicians into local government for all engineering jobs will therefore be of the order of 175 a year, which hardly matches up to the countrywide vacancies suggested by appendix F. Authorities not so far sponsoring technician trainees must therefore do so, and those already doing so must have the maximum number that their training resources will permit.

4.6.6. The widespread use of certificated technicians will require major changes in career policy in local authorities as a whole. At the moment many technicians are treated as professional engineers and paid accordingly, albeit on a low grade and with little prospect of promotion. But technicians of the future will by their very numbers need to be properly recognised as such, and a career structure with appropriate salaries and promotion opportunities will have to be developed. The G.L.C. has recognised this, and the prospects and salaries open to the best of their technicians are such as to offer a very worthwhile career to the school leaver. This is a pattern which all major authorities will have to follow. It will in turn mean that engineers will, without exception, have to be of the calibre required for middle and senior management positions.

PART 5 Other professional and technical manpower

(1) *Planners and planning technicians*

5.1.1. Full details were obtained from the sample authorities of the planners and planning technicians engaged on traffic/transport work. Planners are those with a degree, diploma or recognised professional qualification in planning, while planning technicians are those engaged on technical planning work but lacking full professional qualifications. People with a wide variety of backgrounds fall into this category — those who have failed to obtain a full professional qualification, those with an intermediate qualification in a subject closely related to planning who see their future in planning, and those who have started without qualifications but have picked up some routine expertise by working in planning.

5.1.2. Our sample figures suggest that overall in the county boroughs there are less than the equivalent of 80 full time planners working in the traffic/transport field. This planning commitment consists very largely of an accumulation of part-time effort by the individuals concerned. We found very few planners engaged full-time on traffic/transport work, but where we did so, their effectiveness seemed to be greatly increased, and we formed the impression that it would be much better if authorities with, say, six planners, all of whom spend a little time on traffic/transport work, could instead commit one or two planners to it full time, who could form the land use planning element in the authority's transport planning unit. Many planners who were said to be involved in transport planning were in fact really working on traffic management schemes where land use considerations and the needs of traffic converge, for example, as in town centre development plans.

5.1.3. Very few of the sample authorities have more than one or two planning technicians. We are not competent to talk about the full range of planning skills, nor form a view on what the optimum ratio of planners to planning technicians should be; but it was significant that almost without exception the planners to whom we spoke thought there was an important role for the planning technician, and the hope was frequently expressed that the Town Planning Institute (T.P.I.) would follow the C.E.I.'s example in sponsoring a comprehensive technician's training scheme. Three of the sample authorities had in fact taken the initiative in beginning to train their own planning technicians. We understand that a planning technician training scheme has now been approved by the Department of Education and Science and the T.P.I., and that courses began at one or two centres in 1969/70. Our discussions with the sample authorities convince us that these courses will be in great demand.

5.1.4. We did not enquire into the total vacancies for planners or planning technicians in the sample authorities nor did we see the full range of planning work. However, much of the limited range of work that we did see being done by planners seemed to us to be of technician standard, and capable of being done by a planning technician had such a person been available.

(2) *Mathematicians, statisticians and computer specialists*

5.2.1. The questionaire asked for full details of the statisticians, mathematicians, and computer specialists, engaged on traffic/transport work. Ten of the 35 sample authorities have such staff, and we estimate that all together there are about 25 of these people in the county boroughs. The inadequacy of this figure is apparent once one recognises the need for these skills in each authority, or group of authorities, where the transport problem is already so complex that a full interdisciplinary transport planning team is an immediate requirement.

5.2.2. We also asked for details of staff in the related technician categories. The people coming into this category were trainee statisticians, of whom there are very few, computer programmers, and those with qualifications from the Institute of Transport (the majority), most of whom are employed in management positions in public transport operation. On the evidence of the sample there are about 125 of these people in the county boroughs.

(3) *Economists*

5.3.1. Economics is also a skill that must be represented in fully developed transport planning teams, but in fact economists are even scarcer than the other numerate disciplines mentioned at 5(2) above. Only six of the 23 top tier authorities have an economist on traffic/transport work, and often he is only employed on a part-time basis.

(4) *Quantity Surveyors and Valuers*

5.4.1. Valuation staff is concentrated in top tier authorities, and the valuers engaged on land acquisition for highway and traffic schemes are always part of the pool of valuation staff found in a separate department. We are not competent to talk about valuation procedures, and did not look at all closely at this aspect of the work; but one thing that struck us was the very marked difference between authorities in the number of valuers engaged on highway and traffic schemes – a difference which did not seem explicable in terms of the amount of land acquisition work in hand. We suspect that working practices vary greatly in different parts of the country, and that in some areas there is a duplication of effort between the valuation staff of local authorities and the District Valuer. We would, therefore, suggest that those concerned should consider a review of work patterns to eliminate any unnecessary overlap.

5.4.2. Three counties and one county borough in the sample have professional quantity surveyors supporting their engineers on highway work, and the total employed in the four most densely populated counties is 15. It is not possible to estimate the number of quantity surveyors engaged on highway work in the country as a whole, but it is significant that few authorities use quantity surveyors but that those that do are amongst the larger authorities. We note that the Ministry's road construction units also employ quantity surveyors, and it occurs to us that they may provide an improved method of working, but one which is only practicable with a certain volume of work. If this is so, we suggest that the engineers and surveyors of top tier authorities should review their methods of work in relation to its volume to see if the use of quantity surveyors would bring any benefit.

TRANSPORT ORGANISATION AND STAFF

Name of authority . . . .

A. GENERAL TRANSPORT ORGANISATION AND BACKGROUND

1. What chief officer/chief officers is/are responsible for overall transport planning and the co-ordination of transport matters including traffic, highways and public transport? Also please indicate the various Council Committees to which this officer/these officers report(s).

2. What is the present population of the authority?

   What is it expected to be in 1981?

   In 1991?

3. What is the present level of car ownership?

   What is it expected to be by 1981?

   By 1991?

4. How are you organised internally to deal with (i) overall transport planning (ii) highway design and construction (iii) traffic engineering and traffic management (iv) public transport? Please indicate what separate departments or sections within departments you have, and when these were established.

5. Are any changes contemplated in the authority's organisation for dealing with the tasks mentioned at question 4? If so, please give details and indicate when these changes are likely to occur.

B. PUBLIC TRANSPORT

(Non bus operating authorities should ignore questions 6, 7, 8 and 10)

6. Indicate the extent of the authority's public transport operations by giving details of the number of buses in your transport fleet at present, and total receipts and the number of passengers carried in the financial year 1966/67.

7. Name any other operators who run basic stage services in the authority's area, and indicate the extent of these services, if possible by reference to the criteria mentioned in question 6.

8. How regularly does the authority's transport department meet these operators and British Rail to discuss common problems? Does anything significant emerge from these discussions?

9. How regularly do the authority's transport planning and traffic management sections discuss common problems with these operators and British Rail? Does anything significant emerge from these discussions?

10. Indicate by reference to the number of men engaged in such work and their total pay roll in the financial year 1967/68, the extent to which the authority's public transport department uses work study, O & M or similar techniques and applies computer techniques to operational problems.

C. HIGHWAY DESIGN AND CONSTRUCTION

11. Please indicate your total expenditure on highways in each of the financial years 1961/2 to 1966/7.

(i) This should cover new construction, improvements, maintenance and lighting.
(ii) All expenditure figures should include Exchequer grants.
(iii) All forecasts of future expenditure should be at current prices.
(iv) The cost of land should be shown separately in all cases.
(v) Do not include expenditure on car parks which should be included at question 17.

Construction, etc.	*Land*	*Total*
1961/2	. . . .	. . . .
1962/3	. . . .	. . . .
1963/4	. . . .	. . . .
1964/5	. . . .	. . . .
1965/6	. . . .	. . . .
1966/7	. . . .	. . . .

12. What total expenditure on highways do you expect in each of the financial years 1967/8 to 1971/2?

Construction, etc.	*Land*	*Total*
1967/8	. . . .	. . . .
1968/9	. . . .	. . . .
1969/70	. . . .	. . . .
1970/1	. . . .	. . . .
1971/2	. . . .	. . . .

13. What order of total expenditure on highways do you expect over the 5 year period 1972/3 to 1976/7?

14. Questions 19-21 ask for full details of your *present* staff. Here please estimate what *increases* over present establishment levels (i.e. staff in post plus unfilled vacancies) will be necessary for highway work in the period up to 1976/7. What new techniques or other changes in methods of work do you expect in this period?

15. To what extent do you/have you employ(ed) consultants on highway design and construction? Please give details of the total cost of consultancy charges incurred in each of the financial years 1961/2 to 1967/8.

1961/2 . . . . .
1962/3 . . . . .
1963/4 . . . . .
1964/5 . . . . .
1965/6 . . . . .
1966/7 . . . . .
1967/8 . . . . .

16. Have you any yardsticks for relating professional manpower requirements to (i) the cost of highway maintenance (ii) the construction cost of highway works and (iii) the total cost including land acquisition of new highway works? What use is made of these yardsticks?

D. TRAFFIC MANAGEMENT AND TRAFFIC ENGINEERING

17. Give details of total expenditure on traffic management/parking schemes for each of the financial years 1961/2 to 1966/7. What total expenditure on traffic management/parking schemes do you expect in each of the financial years 1967/8 to 1971/2?

1961/2 . . . . .
1962/3 . . . . .
1963/4 . . . . .
1964/5 . . . . .
1965/6 . . . . .
1966/7 . . . . .
1967/8 . . . . .
1968/9 . . . . .
1969/70 . . . .
1970/1 . . . . .
1971/2 . . . . .

18. What changes in staff over present establishment levels, employment of new techniques or other changes do you expect to be necessary for traffic management and traffic engineering in the period up to 1971/2?

E. ANALYSIS OF PRESENT STAFF

PROFESSIONAL JOBS (including professional trainees)

(for technical supporting staff please see question 20)

19. Please indicate the number of professional staff i.e. persons doing jobs to which you would normally assign a graduate or a member of a professional institution employed full-time or substantially full-time on the functions listed below.

(i) Do *not* include staff with divided responsibility between two or more of the functions listed. Details of such staff should be given at question 19A.

(ii) In all cases indicate the number actually in post. The number of unfilled vacancies on your establishment should be entered on the line marked 'VACANCIES'.

(iii) Entries should be made under a man's main job skill or specialism i.e. the skill or specialism which qualifies each person to do his present work (this may not always coincide with his initial qualification).

(iv) Please *include* graduates under training but *exclude*
chief officers mentioned at question 1
consultants' and outside contractors' staff
all persons away on full-time courses (see question 23)
staff assigned full-time to a land use/transportation survey (see question 28).

(v) Functions are grouped under main headings and broken into sub-headings. If it is possible to allocate staff to particular sub-heads please do so; otherwise please enter details against the main heading.

	JOB SKILL							
FUNCTION	(i) Civil Engineering	(ii) Planning, architecture	(iii) Economics, sociology	(iv) Mathematics, statistics, systems and operational analysis	(v) Mechanical engineering	(vi) Valuation	(vii) Electrical and electronic engineering	(viii) Others – please specify
1. TRANSPORT PLANNING general co-ordination and long term planning – *excluding* staff engaged full-time on land use/transportation studies.								
2. HIGHWAY WORK								
2(A) HIGHWAY PLANNING including traffic surveys and assignments and network design.								
2(B) HIGHWAY DESIGN AND CONSTRUCTION including land surveys, design work, preparation of contracts, supervision of works.								
2(C) HIGHWAY PROCEDURES including work in connection with Orders, inquiries, land purchase negotiation, etc.								
2(D) MINOR IMPROVEMENTS AND ROAD MAINTENANCE								

FUNCTION	JOB SKILL							
	(i) Civil Engineering	(ii) Planning, architecture	(iii) Economics, sociology	(iv) Mathematics, statistics, systems and operational analysis	(v) Mechanical engineering	(vi) Valuation	(vii) Electrical and electronic engineering	(viii) Others – please specify
3. PASSENGER TRANSPORT MANAGEMENT AND OPERATION								
4. TRAFFIC ENGINEERING AND TRAFFIC MANAGEMENT								
4(A) TRAFFIC MANAGEMENT FACT FINDING including surveys, counts etc. in connection with traffic management/traffic engineering schemes.								
4(B) TRAFFIC ENGINEERING/ MANAGEMENT design and implementation of traffic management/traffic engineering schemes.								
4(C) TRAFFIC MANAGEMENT PROCEDURES work in connection with objections, inquiries, development control, etc.								
VACANCIES								

19.A Please indicate what professional staff i.e. persons doing jobs to which you would normally assign a graduate or a member of a professional institution spend part of their time on one or more of the transport functions referred to. Use a separate line for each member of your staff, filling in his main job skill in column (1). Where he is employed for some 50% or more of his time put a *tick* in the appropriate column. Where he is regularly engaged on a particular job, but for less than 50% of his time please put a *cross* in the appropriate column.

	FUNCTION											
(1) Main Job Skill or Specialism	1. Transport Planning	2. Highway Work	2. (A) Highway Planning	2. (B) Highway design & Construction	2. (C) Highway Procedures	2. (D) Minor Improvements & Road Maintenance	3. Passenger Transport Management & Operation	4. Traffic Engineering & Traffic Management	4. (A) Traffic Engineering/ Management Fact-finding	4. (B) Traffic Engineering/ Management	4. (C) Traffic Management Procedures	Work Outside the Transport Field
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

TECHNICAL SUPPORTING STAFF

20. Please indicate the number of technical sub-professional staff, i.e. persons doing jobs requiring technical expertise or qualifications falling short of full professional status employed full-time or substantially full-time on the functions listed below.

(i) Do not include staff with divided responsibility between two or more of the functions noted. Details of such staff should be given at question 20A.

(ii) In all cases indicate the number actually in post. The number of unfilled vacancies on your establishment should be entered on the line marked 'VACANCIES'.

(iii) Trainees should *not* be included. Details of these are requested at question 22.

	JOB SKILL							
FUNCTION	(i) Civil Engineering	(ii) Planning, architecture	(iii) Economics, sociology	(iv) Mathematics, statistics, systems and operational analysis	(v) Mechanical engineering	(vi) Valuation	(vii) Electrical and electronic engineering	(viii) Others – please specify
1. TRANSPORT PLANNING general co-ordination and long term planning – *excluding* staff engaged full-time on land use/transportation studies.								
2. HIGHWAY WORK								
2(A) HIGHWAY PLANNING including traffic surveys and assignments and network design.								
2(B) HIGHWAY DESIGN AND CONSTRUCTION including land surveys, design work, preparation of contracts, supervision of works.								
2(C) HIGHWAY PROCEDURES including work in connection with orders, inquiries, land purchase negotiation, etc.								
2(D) MINOR IMPROVEMENTS AND ROAD MAINTENANCE								

	JOB SKILL							
FUNCTION	(i) Civil Engineering	(ii) Planning, architecture	(iii) Economics, sociology	(iv) Mathematics, statistics, systems and operational analysis	(v) Mechanical engineering	(vi) Valuation	(vii) Electrical and electronic engineering	(viii) Others – please specify
3. PASSENGER TRANSPORT MANAGEMENT AND OPERATION								
4. TRAFFIC ENGINEERING AND TRAFFIC MANAGEMENT								
4(A) TRAFFIC MANAGEMENT FACT FINDING including surveys, counts etc. in connection with traffic management/traffic engineering schemes.								
4(B) TRAFFIC ENGINEERING/ MANAGEMENT design and implementation of traffic management/traffic engineering schemes.								
4(C) TRAFFIC MANAGEMENT PROCEDURES work in connection with objections, inquiries, development control, etc.								
VACANCIES								

20A. Please indicate what technical sub-professional staff i.e. persons doing jobs requiring technical expertise or qualifications falling short of full professional status spend part of their time on one or more of the transport functions referred to. Use a separate line for each such member of your staff, filling in his main job skill in column (1). Where he is employed for some 50% or more of his time put a *tick* in the appropriate column. Where he is regularly engaged on a particular job, but for less than 50% of his time please put a *cross* in the appropriate column.

	FUNCTION											
(1) Main job Skill or Specialism	1. Transport Planning	2. Highway Work	2. (A) Highway Planning	2. (B) Highway design & Construction	2. (C) Highway Procedures	2. (D) Minor Improvements & Road Maintenance	3. Passenger Transport Management & Operation	4. Traffic Engineering & Traffic Management	4. (A) Traffic Engineering/ Management Fact-finding	4. (B) Traffic Engineering/ Management	4. (C) Traffic Management Procedures	Work Outside the Transport Field
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

21. Give details of any other staff of managerial or similar status employed to assist the professional staff on the jobs listed at question 19.

22. Does the authority operate a technician trainee scheme? If so please give full details of the type of scheme, the job skill covered and number of technicians currently under training.

23. Does the authority sponsor professional staff on postgraduate or similar courses, have graduates under training or sponsor students on sandwich degree courses? If so please give full details of the type and number of persons in each of these categories.

24. Apart from the major training schemes covered at question 22 and 23, does the authority send professional or technical staff to special courses on management or transport subjects? If so please give full details.

F. LAND USE/TRANSPORTATION STUDY

25. Is/Has the authority undertaking/undertaken or sponsoring/sponsored such a study? Does it intend to do so?

26. What other authorities are/were/will be covered by the study area?

27. If consultants were employed, please give the length of time the study took, the total cost and details of the staff employed by the consultant (if known).

28. If a local authority team was used, please say how the team was recruited, give the length of time the study took, and a breakdown of the skills of the professional and technical staff who were members of the team.

29. Give a brief indication of the way in which the work of the study team was directed and supervised.

G. **CLAIMING AUTHORITIES**
(to be answered by county councils only).

30. Please give a full list of the non-county boroughs and district authorities within the county that claim highway, traffic and parking powers.

SIGNED . . . .

POSITION . . . .

DATE . . . .

Appendix B

TRANSPORT ORGANISATION AND STAFF

REPORT

AUTHORITY
VISITED ON
CHIEF OFFICERS AND SENIOR STAFF SEEN
(i)
(ii)
(iii)
(iv)
(v)

ORGANISATION

1. How would you assess these chief officers' awareness of the need for an integrated approach to transport?

   (a) Very aware
   (b) Reasonably aware
   (c) Reasonably aware but lacking in drive
   (d) Not very aware

2. How was their ability to translate this into action affected by the Council's committee structure?

   (a) Greatly impaired
   (b) Impaired to some extent
   (c) Generally unaffected

3. Factors accounting for your appraisal at 1 and 2 above.

4. How effective was co-operation between chief officers in transport matters?

   (a) Very effective
   (b) Effective
   (c) Not very effective

5. Factors accounting for your appraisal at 4 above.

6. Did the internal organisation reflect an awareness of the need for an integrated transport plan?

7. If not, how did the authority function in the transport field?

8. Was bus operation seen essentially as:—

   (a) A narrow commercial undertaking
   (b) A social service going beyond commercial factors
   (c) A transport function needing to be fully integrated into the transport framework of the area.

9. Was there any co-ordination of effort in transport between the Council and other local authorities?

10. How effective were relations between the Council and British Rail?

    (a) Very effective
    (b) Effective
    (c) Not very effective
    (d) Poor

11. How would you assess the overall effectiveness of the authority's organisation for transport work?

    (a) Very effective
    (b) Effective
    (c) Not very effective
    (d) Poor

STAFFING

12. The content of their work was discussed with the following professional staff:–

(i)

(ii)

(iii)

(iv)

13. The [ ] technical supporting staff shown on the questionnaire at questions 20 and 20A were made up as follows:–

(i) Personnel with ONC/HNC or qualifying for the C.E.I. certificate. Trainees.
(ii) Long experienced personnel with no qualifications
(iii) Others – specify

14. The content of their work was discussed with some of the above as follows:–

(i)

(ii)

(iii)

(iv)

15. To what extent were these technicians doing the sort of work of which a C.E.I. certificate technician would be capable?

	Completely	Largely	To some extent	Hardly at all
(i)				
(ii)				
(iii)				
(iv)				

16. To what extent was the work done by professional engineers capable of being done by a C.E.I. technician?

	Completely	Largely	To some extent	Hardly at all
(i)				
(ii)				
(iii)				
(iv)				

17. How were the professional engineers and technicians supported by drawing office, clerical and other facilities?

(a) Well supported
(b) Adequately supported
(c) Poorly supported

18. Factors accounting for assessment at 17 above.

19. In general did the authority think the C.E.I. Technician Scheme would work?

20. What proposals have they for getting technicians:—

    (a) by advertisement
    (b) recruit trainees and provide proper training facilities
    (c) recruit from declining industries, retired police officers and public servants.

21. To what extent was overall performance and manpower affected by accommodation standards?

22. What special provisions are made by the authority to attract staff (housing, loans, etc.)?

23. Does the authority have any particular recruitment difficulties?

24. Any other general points about the authority and its area.

Signed . . . . and . . . .

. . . . 1968.

Council of Engineering Institutions

2 Little Smith Street, Westminster, S.W.1. Telephone: 01-799 3912-4

PROFESSIONAL ENGINEER AND ENGINEERING TECHNICIAN

The following definitions have been adopted by the Engineering Societies of Western Europe and the U.S.A. *(EUSEC)* for the purposes of Conference discussions.

PROFESSIONAL ENGINEER

A professional engineer is competent by virtue of his fundamental education and training to apply the scientific method and outlook to the analysis and solution of engineering problems. He is able to assume personal responsibility for the development and application of engineering science and knowledge, notably in research, designing, construction, manufacturing, superintending, managing and in the education of the engineer. His work is predominantly intellectual and varied, and not of a routine mental or physical character. It requires the exercise of original thought and judgment and the ability to supervise the technical and administrative work of others.

His education will have been such as to make him capable of closely and continuously following progress in his branch of engineering science by consulting newly published work on a world-wide basis, assimilating such information and applying it independently. He is thus placed in a position to make contributions to the development of engineering science or its applications.

His education and training will have been such that he will have acquired a broad and general appreciation of the engineering sciences as well as a thorough insight into the special features of his own branch. In due time he will be able to give authoritative technical advice, and to assume responsibility for the direction of important tasks in his branch.

ENGINEERING TECHNICIAN

An engineering technician is one who can apply in a responsible manner proven techniques which are commonly understood by those who are expert in a branch of engineering, or those techniques specially prescribed by professional engineers.

Under general professional engineering direction, or following established engineering techniques, he is capable of carrying out duties which may be found among the list of examples set out below.

In carrying out many of these duties, competent supervision of the work of skilled craftsmen will be necessary. The techniques employed demand acquired experience and knowledge of a particular branch of engineering, combined with the ability to work out the details of a task in the light of well-established practice.

An engineering technician requires an education and training sufficient to enable him to understand the reasons for and purposes of the operations for which he is responsible.

The following duties are typical of those carried out by engineering technicians:

> working on design and development of engineering plant and structures; erecting and commissioning of engineering equipment and structures; engineering drawing; estimating, inspecting and testing engineering construction and equipment; use of surveying instruments; operating, maintaining and repairing engineering machinery, plant and engineering services and locating defects therein; activities connected with research and development, testing of materials and components and sales engineering, servicing equipment, and advising consumers.

ENGINEERS EMPLOYED ON TRAFFIC/TRANSPORT WORK

	All English County Boroughs		The Four Most Densely Populated Counties		The Twelve Second Tier Authorities		The Five Less Densely Populated Counties	
	No.	%	No.	%	No.	%	No.	%
Civil engineers employed on								
Highway work	800	73	570	91	33	65	640	95
Traffic management and Traffic engineering	190	17	34	6	14	27	22	4
Transport planning	30	3	4	less than 1	3	6	5	less than 1
Total civil engineers on traffic/transport work	1020	93	608	97	50	98	667	99
Mechanical and electrical engineers	75	7	18	3	1	2	6	1
Total engineers	1095	100	626	100	51	100	673	100

Appendix E.

TECHNICIANS EMPLOYED ON TRAFFIC/TRANSPORT WORK

	All English County Boroughs		The Four Most Densely Populated Counties		The Twelve Second Tier Authorities		The Five Less Densely Populated Counties	
	No.	%	No.	%	No.	%	No.	%
Civil engineering technicians employed on								
Highway work	460	59	180	69	25	71	244	81
Traffic engineering and traffic management	160	21	66	25	8	23	38	13
Transport planning	1	Negligible	4	2	0	0	3	1
Total civil engineering technicians	621	80	250	96	33	94	285	95
Mechanical and electrical engineering technicians	155	20	10	4	2	6	15	5
Total technicians	776	100	260	100	35	100	300	100

Appendix F.

ENGINEERS AND TECHNICIANS NEEDED AT DIFFERENT WORKING RATIOS

	(1) Engineers	(2) Vacancies for engineers	(3) Engineering technicians	(4) Vacancies for engineering technicians	(5) (1) + (2) + (3) + (4) Stated total present engineering manpower need	(6) Engineers needed at ratio of 1:1	(7) Technicians needed at ratio of 1:1	(8) Engineers needed at ratio of 1:2	(9) Technicians needed at ratio of 1:2	(10) Engineers needed at ratio of 1:4	(11) Technicians needed at ratio of 1:4
English County Boroughs	1095	200	776	107	2178	1089	1089	726	1452	436	1744
The Four Most Densely Populated Counties	626	66	260	11	963	481	481	321	642	193	770
The 5 Other Sample Counties	673	130	300	81	1184	592	592	395	790	237	948
The 12 Second Tier Sample Authorities	51	7	35	7	100	50	50	33	66	20	80

URBAN TRANSPORTATION MANPOWER INQUIRY

FINAL REPORT

1st SEPTEMBER 1969

by

MESSRS. URWICK, ORR & PARTNERS LIMITED

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I. INTRODUCTION

A. TERMS OF REFERENCE

In response to an invitation from Lady Sharp dated 15th March, 1968, and in the light of subsequent discussions, we submitted proposals for consultancy assistance with the project "Blueprint for the organisation and staffing of transportation departments of future local authorities".

Our initial submission dated 2nd May, 1968, proposed a comprehensive programme of consultancy assistance. In the event, you decided that the proposed programme was too extensive to be accepted at that stage. Accordingly, you asked us to amend our proposals to provide assistance within a more restricted range, and revised proposals submitted on 30th May, 1968, were accepted. Your letter dated 13th September, 1968, set out the agreed terms of reference to which we were to work, and the contractual arrangements for the assignment. The terms of reference were:—

"to undertake a study in the County Borough of Sheffield with the immediate objective of producing:—

1. A clear definition of the 'transportation' function of a large multi-purpose authority of the future.

2. An analysis of the problems likely to arise in the establishment of such a function within such an authority.

3. A clear statement of the questions which the establishment of such a function would pose.

4. Answers to these questions so far as they can be determined in the time and context of this study.

Following detailed discussion on our findings on the Sheffield study, it was agreed that it would be desirable to carry out a study of a large conurbation. Subsequently, in the letter dated 3rd February, 1969, the scope was widened to include the South East Lancashire, North East Cheshire area (referred to hereafter as the S.E.L.N.E.C. area) which is the very large urban concentration based on Manchester with a population of nearly 3 million.

The purpose of the extension was to:—

1. Continue the investigation in greater depth, and include such aspects as the relationship between transportation planning and:—
   a. land use planning
   b. provincial planning.

2. Identify and examine any features of the problem which are likely to be specific to a large conurbation such as the S.E.L.N.E.C. area.

It was originally intended that six weeks of the consultancy time planned would be devoted to a study of the organisation of land use planning and of the implications of provincial planning. It was subsequently agreed that it would be necessary to spend only sufficient time on these aspects to formulate proposals on the organisation of transportation and on the functional relationship with land use planning and provincial planning. The six weeks intended for this purpose, therefore, were not fully taken up.

B. ASSUMPTIONS AND CONSTRAINTS

The assumptions and constraints concerning the study were outlined at the initial meeting before the start of the assignment. These were defined and agreed at the meeting with Lady Sharp on 27th September, 1968, and are given in appendix 1.

C. DEFINITION OF TERMS

It was apparent from the early stages of the study that there was a need to establish common ground in definition of terms to be used, especially those covering the planning and transportation activities of local authorities. Terms and definitions used in this report are given in appendix II and include the following:–

1. transportation;
2. transportation planning, highway planning, area planning and control, traffic management;
3. strategy, objectives, strategic planning, short-term planning, policy;
4. main activities, key tasks, action plan, job specification, man specification.

II. APPROACH TO THE ASSIGNMENT

A. COMPOSITION OF CONSULTANCY TEAM

The consultancy team engaged on the assignment comprised:–

Mr. F. A. Rose – team leader responsible for the general direction of the study.
Mr. J. Slater – organisational and related aspects.
Mr. W. R. Seddon – management and technical capabilities (Sheffield-based study)
Mr. R. J. Clark – management and technical capabilities (Manchester-based study)

The team have received additional specialist advisory assistance during the study from other consultants in the Urwick Group:—

- a. specialist operational research consultants;
- b. consultants engaged on the major reorganisation assignment with Sheffield Corporation;
- c. Urwick Diebold consultants on computer operations.

B. IDENTIFICATION OF PROBLEMS

The first task was to identify the main potential problems likely to be encountered in establishing the transportation function in a multi-purpose authority, to form a basis for defining the main areas of study. These are defined as follows:—

1. Clarification of the main purpose of the transportation function, and the activities to be performed to fulful its purpose.

2. The organisation structure required, as a basis for:—
    - a. defining the capabilities and skills required
    - b. identifying possible problems of implementation.

3. The capabilities and skills required in order to staff the organisation and undertake the activities.

4. The likely problems in establishing the transportation function, including the special relationships to be established, internally and externally.

5. Differences which arise from the size, organisation and distinctive features of the types of the two areas studied, namely:—
    - an authority centred on the County Borough of Sheffield (population 1 million).
    - an authority based on the S.E.L.N.E.C. area (population 2¾ million).

6. Other questions likely to arise in the operation of the transportation function, and answers to these questions in so far as they could be given within the scope of this study.

After describing the general background of the urban transportation problem, the report follows the above sequence.

C. PROGRAMME OF STUDY AND MEETINGS

The programme of study and investigation followed the broad pattern outlined below:—

1. Studies of published data on urban transportation including:—
    - a. government white papers and study group reports;
    - b. publications on transportation planning methodologies;

c. transportation studies conducted by local authorities in U.K., N. America and Australia.
d. reports of conferences on urban transportation and related subjects;
e. miscellaneous papers provided by the Road Research Laboratory library.

The main publications studied during the assignment are listed in appendix III.

2. Discussions in depth with a wide range of individuals involved directly or indirectly in urban transportation, in central and local government. A list of these individuals and their positions is given in appendix IV.

3. Progressive development of the conclusions and recommendations and discussion of these at periodic meetings with Lady Sharp, and with certain members of her advisory group. These meetings were preceded by the submission of memoranda presenting the interim conclusions as a basis for discussion, and to test out our thinking at each stage.

4. Submission of a draft report towards the end of our studies, presenting the conclusions and recommendations at that stage.

5. Further discussions on all aspects of the conclusions, recommendations and their implications, leading to submission of this final report.

III. GENERAL IMPLICATIONS OF THE URBAN TRANSPORTATION PROBLEM

The overriding objective of local government planning must be to improve the quality of urban life.

The recognition that urban transportation planning is one aspect of the integral process of the planning of improved urban environment is essential to any consideration of the organisation and staffing requirements of the transportation and planning functions of local government.

Urban transportation planning activities will be increasingly concerned with problems emanating from the need for:—

1. urban land use and economic objectives which have been established within the context of wider provincial strategies and objectives;

2. controlled development of new systems, and improvement of existing systems, of highways and of public transport services;

3. co-ordination of all transportation activities within the local authority area;

4. balancing the physical requirements for transportation with the need to improve the environment.

A. URBAN DEVELOPMENT AND TRANSPORTATION

The planning of urban transportation is an essential part of the total strategic planning of land use. It must follow from – and in turn influence – plans and discussions on:–

- a. the kinds of cities and environment we want i.e. the quality of urban life;
- b. economic development of the area;
- c. the areas designated for housing, industrial, commercial, cultural and recreational activities.

Decisions made in all these areas will have far reaching and permanent effects on the long term physical structure of the area.

B. MAIN ELEMENTS OF THE URBAN TRANSPORTATION PROBLEM

As a background to the study, the main elements of the urban transportation problem are listed below:–

1. There is an ever increasing demand for greater personal mobility and for movement of supplies, i.e. for both more and better transport and related facilities.

2. Individual projects in transportation capital investment – whether in land for highways, car parks and other public and private transport facilities – are vastly and increasingly expensive, and make heavy demands on scarce urban land. They may have to last for generations, but technologies, social habits and population distribution are changing at a greater rate than in the past.

   Nevertheless, it is necessary to make decisions on what, where and how much to invest, bearing in mind that improvements in highways may well have to be accompanied by improved attractiveness of public transport, and should be planned in the context of the over-riding transport objectives of the authority.

3. In establishing investment priorities, it should be recognised that:–
   - a. investment in highways and parking facilities and in public transportation should be evaluated by the use of consistent investment appraisal techniques;
   - b. even substantial improvements in highways and parking facilities are unlikely to provide sufficient capacity to satisfy unrestrained demand for transportation by private car, especially during peak periods.

4. Current transportation thinking leads to the conclusion, therefore, that public passenger transport should play an increasing role in urban life because:–
   - a. the very considerable resources needed to provide for the unlimited use of private cars for commuter travel in large cities would be beyond the limits of the available land, men and finance;
   - b. there are fundamental community objections to unrestrained provision for vehicles;
   - c. it is necessary to cater in any event for the large proportion of the population who do not drive.

5. The demand for transportation, whether public, private or commercial, fluctuates widely, and practical and economic problems of operating systems of compensatory pricing remain to be solved. Moreover, there is limited understanding of the relative significance of the different factors which influence choice in the mode of transport used e.g. cost, speed, reliability, convenience, comfort and other less tangible considerations.

6. Whilst the demands of vehicular traffic tend to dominate present and future problems, transportation planning must provide for pedestrians in such matters as pedestrian precincts, traffic-free city centres, street crossings, and also for measures for prevention of accidents.

7. Although it will be necessary to examine the implication of technological innovations in transportation, establishing the best criteria for the combined use of present transport technologies and resources is the pressing need in the short-term. This needs to be done in the light of capital resources likely to be available, and of an evaluation of the probable economic and social benefits.

8. Cost-benefit relationships are not readily defined or evaluated, especially in terms of delays, physical environment, noise, atmospheric pollution and changes in land use. But social and economic factors need to be built into the general economics of transportation, as they can influence choices between:—
   a. investments in different modes of transport;
   b. the balance of capital investment between transport and other amenities.

C. EXISTING LOCAL AUTHORITY ORGANISATION

The existing organisation of the majority of urban authorities is the result of gradual development over a long period, during which new departments and committees have been created at intervals to meet specific extra needs. The existence of a large number of self-contained departments with lines of responsibility to, and contact with, individual committees is characteristic of most authorities. It is believed that transportation as a comprehensive function has not yet been established as part of the departmental structure of any authority, apart from the Greater London Council, where it is still in an early stage of development.

This, of course, is part of the wider problem of the lack of co-ordinated planning, to which increased attention must be given for the future.

Highway planning, traffic management and public transport management are often carried out separately from each other, and almost always separately from land use planning. As all these activities need to be co-ordinated at every stage, the job of transportation planning, as defined later in this Report, is not effectively carried out.

These problems have been alleviated in some authorities — for example in those where:—

i the town clerk exercises a strong co-ordinating role;
ii. the respective chief officers have established a good personal relationship, and extended this to subordinate levels in their respective departments.

D. CURRENT TRANSPORTATION STUDIES

The recognition that development of improved highway facilities alone would not provide a feasible or desirable solution in large urban areas resulted in the initiation of transportation studies in many of these. Whereas some studies were mainly highways and traffic studies, others explored the possibilities for the balanced development of highways with associated parking policies, and of public transport facilities.

In some cases, the study process has been expanded to take account of a longer term examination of alternative land use plans.

While these studies generally represented major advances on previous methods of analysing the transportation problem, many had shortcomings.

Thus, some studies were limited in scope, especially where:—

a. they were oriented towards the need for unrestrained provision of facilities for private cars;
b. the trip generation procedures were heavily dependent on the transport facilities already in existence.

As a result of the structure of local government in the areas covered by these transportation studies which often included many separate local authorities, and because of the departmental organisation within these authorities, there was no clear framework of longer term strategy to guide the study team's activities and priorities.

The above comments do not imply any criticism of individuals concerned with transportation studies, but they demonstrate the difficulties which competent officials can experience due to the existing structure of local government organisation.

E. FEATURES AFFECTING THE LARGEST URBAN AREAS

The background to the urban transportation problem set out above is of general application to large urban areas; the problems outlined below are inherent in the largest such areas, especially in those known as conurbations:—

1. The land-use patterns of the larger urban areas developed over a century ago during the industrial revolution. They now face massive problems in respect of re-housing, re-siting of industry and, in some cases, of attracting new industries to replace declining basic industries.

2. The limits on expansion caused by planning boundaries, even after re-organisation, may be more critical than in other areas, resulting in a concentration of expansion within these boundaries.

3. The size of land area and population creates its own problems especially in transportation redevelopment and re-housing.

4. Rail commuter traffic is of increased importance; close collaboration between the local authority transportation function and British Rail is an essential requirement.

5. The problem of short stay travellers to the city centre for trading, civic and shopping purposes is more acute than in smaller urban areas. This creates a demand for parking facilities and roads which adds to the demand by commuters on scarce vehicle space.

6. A large authority, with its problems of re-location of housing and industry and associated highways, will influence developments in adjacent areas. Strategic planning in the area must therefore be related to the similar planning of the province in which it is situated. Whilst this is relevant to all urban areas it is especially important in the very large urban areas.

F. IMPLICATIONS FOR LOCAL GOVERNMENT ORGANISATION

Urban transportation planning activities will be increasingly concerned with problems emanating from the need for:—

1. urban land use and economic objectives agreed within the broader framework of provincial strategy and objectives;

2. balanced development of new systems, and improvement within existing systems, of highways and public transport services;

3. co-ordination of all transportation activities.

This is a multi-dimensional problem which demands:—

a. that land use and transportation strategies and objectives are firmly based on the over-riding objective of improving economic, physical, social and cultural environment, i.e. the quality of urban life;
b. the creation and development of the type of local authority organisation needed to pursue these objectives;
c. that this organisation is staffed with individuals of the requisite managerial and technical skills, so that the activities are effectively carried out with the proper sense of priorities.

The costs of overcoming the increasingly severe and complex urban transportation problem will be high, and the strategic decisions made by each authority will have a far-reaching influence on the future development of the urban area and the life of its people.

The need for the investment of large amounts of capital — and the conflicts of interest not only between different forms of capital investment but also between different areas within the authority — will demand the development and application of techniques for ensuring that the maximum benefit to the community is obtained from the public money expended. These techniques will include:—

- cost-benefit economic studies
- planning, programming and budgeting systems (P.P.B.S.)
- discounted cash flow and other investment appraisal techniques.

in addition to the transportation planning techniques currently at an early stage of development.

This will demand both managerial and technical skills and techniques which are considerably beyond existing local government manpower resources.

It will require, too, a new attitude to the whole concept of environmental planning.

IV. MAIN PURPOSE AND ACTIVITIES OF THE TRANSPORTATION FUNCTION

An essential preliminary to the employment and organisation of men of different skills is to define clearly the main purpose of the function and the activities to be carried out to achieve this purpose. This section defines the main purpose and activities of the transportation function in a local authority of the future.

A. MAIN PURPOSE

The previous section of this report demonstrates that the objectives of the transportation function must be related directly to the over-riding objective of the authority in respect of its responsibility for improving the quality of urban life and the social and economic factors governing the use of land.

This essential constraint is therefore included in the following description of the main purpose of the transportation function.

1. To produce and develop, within the context of the over-riding objectives of the authority, transportation strategies and objectives which:—
    a. take account of projected land use patterns, changes in population, economic and social trends, the implication of developments in transportation technologies, and the integral nature of the environmental planning/transportation process;
    b. are the result of an examination of alternative land use/transportation strategies, and recognise the need for a controlled and balanced development of facilities for private and public passenger and goods transportation, and for pedestrian needs and road safety;
    c. take into account estimates of financial needs and constraints, economic and social benefits, and of operating and maintenance expenditure and revenue;
    d. recognise the differing needs of city centres and subsidiary centres, residential and industrial areas.

2. To produce on the basis of agreed strategies and objectives:—
    a. plans for the development of new and existing highway systems, and associated facilities for, and restraints on, vehicle use and parking;

   b. plans for public transportation services in collaboration with the passenger transport undertakings, including passenger transport authorities where these are planned, and British Rail;
   c. short-term improvement plans to make better use of existing highways and traffic systems and public transport facilities.

3. To keep under review and, where necessary, modify plans in the light of changes in assumptions, in forecasts of economic and social patterns and financial resources, and in the plans of the local authority in its various functions.

4. To co-ordinate and control the execution of agreed plans and programmes, in collaboration with other departments and authorities directly concerned including the provincial authority.

B. MAIN ACTIVITIES

The main activities which will need to be undertaken to fulfil the main purposes of the transportation function have been defined, and are grouped below into operational units and sections.

Key tasks – those which are the personal responsibility of the head of the unit and on which depend the success of the undertaking – have also been specified. These operational units and sections are:–

1. *Transportation planning.*

The transportation planning unit is responsible for the development and regular review of strategic objectives and plans, and for their translation into practical programmes for implementation. The unit comprises two sections, responsible for:–

   a. transportation research;
   b. plans and policy development.

The main activities to be undertaken by these two sections are described below:–

   a. transportation research
      i to organise and establish procedures for the collection and processing of data on current transportation patterns, population, economic and social trends, through surveys and other information sources;
      ii. to apply the most relevant up-to-date techniques in the assessment of future transportation needs including traffic generation, travel patterns and mode of travel;
      iii. to assess the impact of future transportation needs for personal and commercial traffic on projected land use patterns, transportation facilities, highways capacity and resources;
      iv. to develop and test alternative transportation models of highway networks on the basis of different levels of investment in highways, parking facilities, and private and public transport, and different policies and levels of services.

    v. to assist, through special studies, in the formulation of plans and policies by the plans and policy development section;
    vi. to undertake studies of public transport services, traffic control, parking and other restraints, and other problems requiring short-term solution in consultation with the traffic management section.

b. plans and policy development
    i. in conjunction with land use planning, to develop and define strategic plans, objectives and policies for transportation in relation to investment constraints, forecasts of socio-economic changes, and the transportation needs of the community;
    ii. to consider alternative policies and their implications and submit proposals covering the above, including estimates of costs and economic and social benefits;
    iii. to review policies, plans and objectives of the transportation function, in the light of changes in those of other departments, and of changes in assumptions and forecasts of future economic and social trends, and financial resources;
    iv. to monitor and evaluate the results of applying agreed plans and policies in terms of economic and social benefits against the original objectives;
    v. to take account of the information and views from executive units in formulating plans and policies, and to advise them on their implementation.

2. *Highways and traffic.*

The highways and traffic unit is responsible for the carrying out of agreed short-term plans of the transportation function.

The unit comprises three sections, responsible for:—

a. highways planning and design
b. traffic management
c. highways construction and maintenance.

Highways planning and design and highways construction are at present grouped by some authorities under a single officer; other authorities treat these activities as two separate functions.

Opinions differ as to the respective practical advantages of these two approaches.

This report postulates the grouping of design, construction and maintenance within the highways and traffic unit, but with each activity directed by a separate officer, as it is considered that a competent head of the unit would ensure proper co-ordination and control.

Local circumstances in each authority would determine whether such a grouping should be adopted or whether construction and maintenance of highways should be excluded from the highways and traffic unit and grouped with other traditional activities of the city engineer.

The main activities to be carried out by the three sections are described below:—

a. highways planning and design
    i. to develop highways plans in relation to agreed objectives, policies and specified priorities, and on the basis of information received from the transportation planning unit;
    ii. to survey possible routes and undertake ground reconnaissance as a basis for determining highways alignment;
    iii. to develop and prepare detailed designs for new highways including bridges, road junctions and intersections etc., in accordance with accepted specifications and technical, safety and landscaping considerations;
    iv. to plan and design for the use of land attached to highways for associated purposes e.g. parking for private cars, parking for commercial vehicles, unloading and loading space, pedestrian precincts, pedestrian bridges and crossings, bus lanes;
    v. to introduce and maintain acceptable standards and uniformity of street lighting throughout the area;
    vi. to negotiate on proposals with Ministry of Transport representatives, statutory bodies, adjoining local authorities, property interests, and district valuers, and make arrangements in regard to orders providing construction facilities;
    vii. to prepare cost estimates of proposed developments and submit these to the appropriate authorities;
    viii. to provide technical supervision of all new works and improvement schemes;
    ix. to develop work programmes and progress control for authorised construction projects.

b. traffic management
    i. to develop traffic management systems to improve the flow of public and private transport through existing road networks, including parking controls, directional constraints, clearways, traffic signs, pricing mechanisms, and other traffic control methods, within the framework of agreed plans and policies;
    ii. to undertake local surveys and investigate complaints to identify and evaluate unsatisfactory traffic situations, and to collaborate with the transportation planning unit in the design of major traffic studies and in the development of plans and policies resulting from these studies;
    iii. to investigate and study accident situations and statistics, and the implications for highway planning and design, and traffic control; to put into effect agreed plans resulting from these studies;
    iv. to propose publicity activities as required, to improve road usage and safety;
    v. to keep abreast of developments in traffic control in other cities, in the U.K. and overseas; to be aware of developments in the "hardware" of traffic management;
    vi to co-operate with the police in matters affecting accident situations and traffic control systems.

c. highways construction and maintenance
   i. to undertake construction of highways and associated works in accordance with agreed plans, specifications, priorities, and cost estimates;
   ii. where work is to be undertaken by contractors, to consider tenders and award contracts, to supervise the work at all stages to ensure that programmed dates and standards of construction are being observed;
   iii. to undertake maintenance work in accordance with specified standards, maintenance requirements and cost estimates;
   iv. to arrange contracts and supervise work in accordance with agreed designs, work programmes and specifications;
   v. to organise and control construction and maintenance projects in accordance with agreed priorities and work programmes.

V. ORGANISATION OF THE TRANSPORTATION FUNCTION

A. GENERAL CONSIDERATIONS

1. A series of basic principles for determining the organisational needs of the transportation function for future local authorities was defined as the study progressed.

   Although the study was directed towards transportation problems, it became clear at an early stage that the relationship between land use and transportation is such that strategic planning must embrace both functions and their relationship to other functions.

   The proposals contained in this section take full account of this need. A more detailed study of land use planning activities and organisational requirements than the study was intended to include could well result in some modification of the organisation structures recommended, but would not affect basic principles.

2. This study was carried out before publication of the findings of the Royal Commission on Local Government, but we were asked in confidence to assume that:—
   a. in the Sheffield area there would be a multi-purpose authority;
   b. in the S.E.L.N.E.C. area there would be a two-tier structure, but with total authority for planning of land use and transportation vested in the first-tier authority.

3. It has been assumed that, in each authority, a chief executive officer will be responsible for the overall management of the activities of the authority.

B. BASIC PRINCIPLES UNDERLYING ORGANISATIONAL NEEDS

1. Strategic planning of transportation and of land use should be recognised as an integral and continuous key function. This should be reflected in the

departmental organisation and also in the committee structure of local government.

Land use plans must take account not only of objectives and plans over the whole range of social amenities, e.g. housing, education, health, welfare, but must also cover industrial sites and the provision of services to them. The transportation problem is more dynamic than these, however, and the planning relationship between land use and transportation must be one of continual interaction.

Moreover, within transportation there is a considerable area of discretion in investment decisions which, in themselves, can significantly influence the urban structure over a period of time.

2. The longer-term strategic transportation planning activities should be carried out separately from the shorter-term planning activities such as highways design and traffic management, on the grounds that:—
   a. the strategic planning must be undertaken by officers who are free from the pressure of short-term demands — although they must have an awareness of them and their longer-term implications;
   b. they require different capabilities and personal characteristics.

3. It will be necessary, therefore, to have competent professional engineering capabilities within the strategic transportation planning function, to contribute to and test thinking at the strategic planning stage.

4. Although strategic planning of transportation and land use should be undertaken by different individuals from those involved in more detailed short-term planning and implementation, they should be carried out within the same span of top management control to ensure that there is effective communication during development of strategic plans, and co-ordination and control of the related component plans. The co-ordination and execution of plans will not then be dependent on officers of separate departments working together in specially arranged committees, working parties, or occasional informal sessions.

5. The organisation of transportation capabilities should provide for the continuous nature of the planning process following from changes in strategies and objectives and from up-dated information.
   This will include, for example:—
   - re-examining assumptions on regional and local population structure and location, employment, traffic movements, trip generation, modes of travel;
   - studying a range of investment decisions, of traffic restraint policies, of highways networks and public transport policies.

6. The city engineer's responsibilities have always included highway engineering, and more recently, traffic management, in addition to various aspects of public health services. In future there will be a need to consider the segregation of highways and traffic responsibilities from public health activities such as outdoor cleansing, refuse collection and disposal, and sewage disposal.

7. There will be a need for a central service providing economic and social data to meet the various needs of the individual functions of the authority. The type of activities outlined in paragraph 5 above indicates the range of data required by the transportation function, some of which will be needed also, though perhaps in different forms, by other functions.

   The type of service to be provided by a "central intelligence service" to transportation planning, including some general economic needs, is described in appendix V. A study of the requirements of other departments would lead to more comprehensive definition of its terms of reference.

C. RECOMMENDED ORGANISATION STRUCTURE

The application of the principles described above leads to proposals for an organisational framework which provides a basis for determining capability requirements, and for identifying possible problems of implementation. As special features of the larger authorities with the more complex problems may demand a modification of the proposed structure, this is discussed separately.

1. *Multi-purpose authority with major transportation problems*

The basic organisation structure recommended for the larger multi-purpose authorities is illustrated in chart form in appendix VI. The main features of this structure are discussed below:–

a. main functions

   The structure provides for the co-ordination of four main units within the control of a senior officer. These are:–

   i. transportation planning – as defined in Section IVB.1.
   ii. highways and traffic – as defined in Section IVB.2.
   iii. land use planning – concerned with overall land use strategy and structure plans.
   iv. area planning and control – concerned with local plans, area action plans and planning control.

   The main activities to be undertaken in the transportation planning unit and the highways and traffic unit have been described in Section IVB.

   As the terms of reference excluded a detailed examination of the land use planning function, proposals covering the detailed organisation of the land use planning unit and the area planning and control unit have not been made.

b. senior position.

   The proposed land use and transportation function would be co-ordinated within the direction and control of the "head of land use and transportation". This officer would be responsible to the chief executive officer of the authority for:–

   i. development of proposals on the strategic plans and objectives for land use and transportation;

ii. the effective implementation and co-ordination of these plans and achievement of objectives through the subordinate officers responsible for short-term planning and execution, viz:—
   - head of area planning and control
   - head of highways and traffic

The key tasks to be undertaken by the officer holding this position are described in appendix VIII.

2. *Large authorities with more complex planning problems*

The basic organisation structure recommended for metropolitan authorities and others with especially complex planning problems is illustrated in appendix VII. This is similar to the structure postulated for the multi-purpose authority in all respects except that the additional position of "head of strategic environmental planning" is proposed. The basis for this suggested appointment is:—

a. some major urban areas have considerable strategic planning problems in terms of complexity and scale;
b. the introduction of this officer will bring specialist planning skills to bear on these problems, and help carry the considerable load of the "head of land use and transportation" in these authorities.

The key tasks to be undertaken by the officer holding the position of "head of strategic environmental planning" are described in appendix IX.

3. *General*

The following general points are emphasized:—

a. A more detailed examination of land use organisational requirements than the study was intended to involve would possibly lead to different proposals. For example, the question whether there is a case for a closer integration of land use and transportation activities at local planning levels ("area planning") would need to be considered.
b. The two basic structures postulated should meet the needs of most of the urban authorities with major transportation problems, but variations in detail may well be required to meet local circumstances.
c. Irrespective of any detailed variations in structure, the responsibility for the co-ordination of land use and transportation functions should exist at a level below the chief executive officer, for the reasons outlined below:—
   i. The chief executive officer would have overall responsibility for a range of local authority functions and would not be able to devote the necessary time to the vital task of integrating land use and transportation planning activities at each stage of their development.
   ii. The need for developing soundly based strategic plans which include:—
      - re-housing
      - re-siting of industry and commerce
      - highways, traffic management and passenger transport

      and relating these to total provincial planning requirements, reinforces the importance of an integrated land use and transportation function within the control of a senior professional officer.

d. In postulating the possible organisation structures described above, the importance of providing a career structure has been recognised. Opportunities for progress for outstanding officers through each broad stream of activities to the senior positions can be seen to exist. Whilst there is a clear need for specific skills in particular jobs, it is also important that the organisational arrangements are such that men have the opportunity to develop a range of skills, enabling them to progress by moving between different units within the function.

There will be a need, in any case, for particular attention to be given to the development of people, so that the organisation structure is effective.

VI. FUTURE CAPABILITY REQUIREMENTS

A wide range of skills and attributes will be needed to resolve the increasingly complex transportation problems of large urban areas.

There will be a need for a functional approach to total environmental planning within the authority and for the training of people in this concept for employment in the transportation function as well as in the land use planning function.

The main problems will be in attracting and training individuals who possess the capabilities which are relatively new to local government.

This section includes:—

1. A description of the process by which capability requirements have been assessed.

2. The definition of the capabilities required to make effective the component units of the transportation function, including the managerial positions.

A. BASIS OF ANALYSIS OF CAPABILITY REQUIREMENTS

The main activities to be undertaken were defined for each section of the transportation function, viz:—

1. Transportation planning — transportation research
   — plans and policy development
2. Highways and traffic — highways planning and design
   — traffic management
   — highways construction and maintenance

The key tasks of the individuals holding the senior positions were also defined viz:—

- — head of transportation planning
- — head of highways and traffic
- — head of strategic environmental planning
- — head of land use and transportation

Each main activity to be undertaken in each section was then analysed into different types of detailed tasks. This was followed by an assessment of the capabilities required to carry out the various types of task.

The personal characteristics and skills required to undertake the tasks of the senior positions were determined by a similar process.

To illustrate this process, appendix X contains an activity/capability analysis used in determining the requirements in the transportation research section.

B. TRANSPORTATION PLANNING

The proposed transportation planning unit comprises two sections, viz:—

- transportation research
- plans and policy development

1. *Main activities*

Transportation research would be responsible for the organisation and operation of studies on current and future transportation needs and traffic problems.

Plans and policy development would be responsible for developing strategic transportation plans and policies after having evaluated and considered a range of alternatives. They would be dependent on transportation research for:—

i. provision of data on current and estimated future transportation demand;
ii. processing of data to evaluate alternative proposals.

The main activities to be undertaken by both the above sections have been described earlier in Section IV.B.1.

The activities of these two sections would clearly be closely related, with the members of each possessing a clear understanding of the work of the other.

2. *Capability requirements*

The capabilities required are described below under the headings of:—

a. general requirements
b. basic skills
c. additional training and/or experience
d. personal attributes

a. General requirements

The overriding need in both sections of transportation planning will be for a team which is flexible in its response to varying work loads in each of its main activities. The team should therefore include a range of skills and attributes, and should not be composed wholly of specialists proficient in one skill only.

All the professional staff in the unit would need to be able to understand problems and situations which are expressed in numerical terms, and to apply numerical techniques in their solution.

b. Basic skills

i. The main requirements of the transportation research unit in terms of basic skills includes engineering (preferably civil), operational research and economics. Any other background could be equally acceptable providing that it includes the numerate ability demanded by the above subjects.

These professional staff would need to be supported by a small group of systems analysts and programmers to provide a capability for the processing of data through computers. The main function of the systems analyst will be to determine the requirements of the system and translate these into a logical sequence of computational steps. The programmer is responsible for taking these steps and translating them into a form which can be assimilated by the computer.

It will be necessary to retain these skills within the transportation planning unit to ensure effective communications between the unit and the central computer service.

ii. The staff of the plans and policy development section will probably comprise outstanding men selected from other planning units, including transportation research, who possess the personal attributes described in d. below.

The skills in this section should include, however, engineering, economics and at least one man with comprehensive experience in environmental planning.

c. Additional training and/or experience

Additional training, both formal and by experience, is especially important, in view of the need for a core of people who have an appreciation of a range of techniques which can be applied to practical problems of urban highway planning, public transport and traffic management.

All professional members of the transportation planning unit should have a knowledge of the total environmental planning and transportation planning processes.

At least one member should have specialist knowledge of ’bus operations.

Another member should be trained in traffic management.

Economists should be trained in the full range of capital budgeting and investment appraisal techniques.

Economists and other staff should also be trained in relevant techniques being developed currently. For example, the members of plans and policy development should be conversant with the application of planning – programming – budgeting systems to environmental and transportation planning.

d. Personal attributes

The essential general attribute of the professional staff has previously been emphasised i.e. the ability to apply numerical techniques to the definition and solution of complex, practical problems.

The staff of plans and policy development are responsible for activities demanding a relatively broad intellectual capability combined with a thorough knowledge and understanding of practical environmental and transportation problems. The personal attributes required include:—

i. a capacity for applying original thought to strategic planning problems;
ii. good communications skills — verbal and written;
iii. interpretative skills, i.e. the ability to translate statistical data into models for studying the feasibility of possible transportation systems.

3. *Number of professional and technical staff required*

The number of professional staff with knowledge and experience in the basic disciplines and appropriate techniques will vary between authorities, depending on the scale and complexity of the environmental and transportation planning problems of the area.

To provide guide-lines on the numbers required we have made an estimate of probable minimum future requirements in two main types of authority, i.e.:—

- the multi-purpose urban authority with complex transportation problems;
- the big conurbations.

These estimates are based on an examination of the transportation planning activities being carried out in the following areas:—

- S.E.L.N.E.C.
- Coventry
- G.L.C.

and on discussions with a large number of individuals with knowledge and experience in this field.

The lower figures represent a critical minimum, which will apply for multi-purpose authorities with major transportation problems, in order to enable the transportation planning function to be effective.

The estimated requirements, exclusive of the senior positions discussed later in this section, are summarised in the following table:—

Type of Authority	Plans and Policy Developt.	Transportation Research	Total
Multi-purpose authority with complex transportation problems	3 – 4	4 – 6	7 – 10
The big conurbations.	4 – 6	6 – 8	10 – 14

These professional staff should be supported by technicians employed on the more routine tasks of:—

- data collection
- coding
- numerical tabulations
- preparation of charts

It is estimated that the minimum number of such technicians required will be:—

Multi-purpose authority	8 – 10
The big conurbations	12 – 18

Although the larger authorities will clearly require more professional staff, the increase will not be in direct proportion to the increase in population.

In the two examples we considered, the increase in professional staff requirement is estimated to be only of the order of 50%, whereas the population of one is over 150% greater than that of the other. The increase in the number of supporting technicians is likely to be more than 50%, however, due to the need for coding, processing and recording a greatly increased volume of data on transportation demand.

A supporting administrative staff would be required to ensure that the professional staff are free from detailed administrative work. The number of such staff would depend mainly on the volume of enquiries, complaints and other forms of communication from elected members and the public requiring investigation and correspondence. It would be unrealistic to assess the volume of this work and the number of staff required to deal with it at this stage.

4. *Smaller authorities*

The purpose of this study was to investigate and report on the transportation problems and requirements of the multi-purpose urban authorities, with complex transportation problems, and of the authorities serving the big conurbations.

However, implementation of the recommendations of the Royal Commission on Local Government would result in the creation of a considerable number of local authorities outside these categories, e.g.:—

- authorities covering a widespread rural area with relatively small urban concentrations;
- smaller urban authorities with less complex transportation problems than the types of authorities covered in this study.

Nevertheless the transportation problems of such authorities are likely to increase in complexity. Their future transportation needs should be planned not only in the context of current demand but also in the light of changes in demand forecast by total environmental planning.

They would probably experience difficulties in acquiring their own resources to carry out transportation studies due to the competition from larger authorities for staff of the requisite calibre. In addition, the difficulties arising from the fact that their problems would be part of a large network of demand would be very real for many authorities. Moreover, because of the minimum "quantum of staff" requirements, the development of the necessary capability in such authorities could well be an expensive matter in relation to the size of their populations.

We consider, therefore, that there may be a strong case for developing a national strategy covering the transportation research resources needed by local authorities. This is particularly relevant in respect of the smaller authorities, or those whose transportation problems are not, as yet, very complex.

In order to develop such a strategy it will be necessary to undertake a study to determine the most effective way of meeting the needs of the type of authorities concerned.

Such a study would need to include investigations of the scope for, and implications of:—

1. the central development of a small range of transportation models for use by local authorities;
2. the operation of these models by a provincially based staff, to forecast the future needs of each individual smaller authority in the provincial area;
3. the provision of a range of skills across each smaller authority to service a number of functions including transportation.

Should a central and provincial transportation research service be feasible, with the smaller authorities possessing a plans and policy development capability, this could result in considerable reductions in manpower, probably with improved quality in operating, compared with the existence of a large number of separate small transportation research operations with the consequent lower average calibre of professional staff.

C. HIGHWAYS AND TRAFFIC

The proposed highways and traffic unit comprises three sections, viz:—
- highways planning and design
- traffic management
- highways construction and maintenance

co-ordinated and managed by the head of highways and traffic. The main activities of these sections were described earlier in Section IV.B.2

1. *Highways planning and design*

a. Main activities

The function of highways planning and design is mainly technical and the relevant skills are those associated with civil/structural engineering. Engineering technicians are needed in support for dealing with simpler aspects of design, calculations and draughtsmanship.

b. Capability requirements

The relevant skills and attributes are summarised below:—

i. Project engineering
    basic skills — civil/structural engineering
    additional training and/or experience — traffic management, transportation planning, planning and control of resources
    personal attributes — ability to organise and lead the work of a project team
    — negotiating ability in dealing with statutory bodies
    — strong planning understanding

ii. Highway planning engineering

basic skills	civil/structural engineering
additional training and/or experience	environmental planning traffic management

iii. Highway design engineering

basic skills	civil/structural engineering
additional training and/or experience	preparations of cost estimates for new projects

iv. Engineering technicians

basic skills	training leading to qualification as technician
additional training and experience	general experience under guidance of professional engineers

v. Architecture

A capability for landscape architecture is required.

In a large authority this should exist within the highways planning and design unit, independently of the architect's department in the authority. In a smaller authority, where there may not be sufficient work for a full-time landscape architect, it may be more satisfactory to obtain this capability, when required, on a consultancy basis.

vi. Quantity surveying

Quantity surveying skills are a necessary capability and the increased scale of highway planning in the larger new authorities may require the introduction of quantity surveyors as part of the engineering teams, especially on the major schemes envisaged in the future.

Two additional points are noted:—

- There is a need for managerial skills among professional engineers
- There is evidence of a general shortage of qualified technicians in the field of highway engineering. Professional engineers as a result are doing tasks which should be preferably undertaken by technicians. This is a factor contributing to an apparent shortage of professional engineers which is not a real one in all areas, or alternatively, it tends to overstate the shortages.

2. *Traffic management*

a. Main activities

The prime function of traffic management is to develop traffic control and management systems through existing road networks.

Its work requires a limited number of men with civil/structural engineering skill with a larger number of engineering technicians.

b. Capability requirements

i. The capability requirements of the engineers are:—

basic skills — civil/structural engineering
additional training and/or experience — traffic management

personal attributes –	analytical ability written and verbal communicating skills ability to organise special traffic studies and interpret results as a basis for practical solutions

ii. The capability requirement of engineering technicians, and the comments made on shortages in the preceeding paragraph, are equally relevant for traffic management.

3. *Highways construction and maintenance*

Highways construction and maintenance is concerned with the employment of the traditional skills of the civil engineer or municipal engineer, which are well established and catered for.

D. SENIOR POSITIONS

The previous two sub-sections describe the basic skills and attributes needed within the five sections of the transportation function.

The senior positions are dealt with separately as they define the requirements in terms of specific individuals, as against capabilities generally needed within the function.

These requirements are described below for the following positions:–

- head of land use and transportation
- head of strategic environmental planning
- head of transportation planning
- head of highways and traffic

While each position will be similar in principle for each type of authority, obviously the scale and complexity of the tasks in the big conurbations will be considerably greater and even more demanding.

1. *Common attributes*

Although there are significant differences in the capabilities required for the senior positions, there are very important personal attributes which are common to all these positions:–

a. Personal managerial ability will be more important than specific professional skills; a capacity for organising, motivating and controlling teams of men who possess diverse disciplines and backgrounds and are engaged in a wide range of activities will be particularly important.

b. These officers must nevertheless have a sound appreciation of the skills used by the individuals under their control, especially of their applications and limitations.

c. A capacity for original thought on problems relevant to future social, economic and physical environment and communications will be important, particularly for the senior position and the strategic planning positions.

d. Skills in the communication of strategies and objectives, and the ideas underlying them will also be required.

2. *Specific capabilities*

a. Head of land use and transportation

This is a position of very considerable importance and influence in that it combines responsibility for developing, implementing and co-ordinating the authority's plans for environmental improvement and transportation. The key tasks to be undertaken are described in appendix VIII.

The specific nature of the basic skills required for this position is not a critical factor, provided that the man appointed possesses all the attributes described above and also:–

i. a capacity for taking a broad strategic view of the complex problems influencing urban enviroment and for bringing objective judgment to bear in devising solutions;
ii. post-graduate training and experience which includes:–
   - environmental planning
   - transportation planning
   - *preferably* management of a large or complex organisation.

b. Head of strategic environmental planning

The key tasks to be undertaken by the individual holding this position are described in appendix IX. This is essentially a planning role. Nevertheless, close and effective relationships with the officers responsible for the highways and traffic unit and the area planning and control unit are essential, to ensure that the practical experience and considered views existing within these units are integrated into the development of strategic plans and policies.

The capabilities required are similar to those for the previous senior position except that:–

i the managerial capability required is limited to the leadership and organisation of a team of planning and research staff, compared with the considerably larger and more complex land use and transportation function;
ii. his training and experience should have developed competence in use of techniques for evaluating strategies and objectives, including planning–programming–budgeting systems.

c. Head of transportation planning

The key tasks of the officer holding this position are described in appendix XI. The basic skills of the man appointed to this position are within a narrower range than those for the two positions discussed above. They should include a mathematics-oriented qualification with a preference for engineering or economics, plus training in operational research and experience in its application to practical problems.

His post-graduate training and experience should also include:–
- environmental planning
- transportation planning
- techniques for evaluation of investment projects

d. Head of highways and traffic

The key tasks of the head of highways and traffic unit are described in appendix XII. Although the desirable personal attributes are similar to those already discussed, the technical capability required can obviously be more clearly defined, viz:–

i	basic skill	–	civil engineering
ii.	additional training and/or experience	–	traffic management, transportation planning, environmental planning, , management, including project management.

Environmental planning and transportation planning are included since highways and traffic engineering should be carried out within the framework of the broader environmental planning strategies and constraints, and therefore require a good understanding of them.

VII. SPECIAL RELATIONSHIPS

The effective operation of the land use and transportation function will require the establishment and development of good working relationships and communications between the component sections of these functions, other departments of the authority and relevant outside bodies.

A. COMMUNICATIONS WITHIN THE LAND USE AND TRANSPORTATION FUNCTION

1. Relationships should be developed between the transportation planning unit and the highways and traffic unit in respect of:–
    a. exchanges of views to test the feasibility and practicability of ideas at each stage of the development of plans and policies;
    b. translation of strategic highway plans into networks for detailed design and implementation, with related subsidiary road improvement and communications;
    c. communication of data and views on general traffic flow as determined by transportation planning, and on local traffic situations identified by traffic management;
    d. research studies by transportation planning on traffic management techniques, as a service to traffic management.

2. There must also be close collaboration between:–
    a. land use planning and area planning and control;
    b. area planning and control and highways and traffic;

    so that the preparation and adoption of local plans is in full accord with structure plans, and the planning and design of highways.

B. COMMUNICATIONS WITH OTHER DEPARTMENTS OF THE AUTHORITY

Although it is not yet known what overall structure will exist in authorities of the future, it is clear that the role of the chief executive officer will be important in co-ordinating all functions within an authority, and arranging for the participation of their departments in strategic planning.

All departments should be consulted on matters within their sphere of interest and kept informed on developments and progress of plans.

Effective communication with service departments providing basic information will be of fundamental importance. These may include:–

1. a central intelligence service
2. a computer department and/or central data bank.

C. PASSENGER TRANSPORT

Irrespective of the policy-forming structure, it is essential that clearly defined relationships are established between the transportation function and those responsible for passenger transport operations on the following general basis:--

a. development plans
    i. No plans should be proposed by those responsible for passenger transport operations without prior consultation, at the main planning stages, with the senior officer responsible for strategic transportation planning.
    ii. Transportation planning should similarly consult those responsible for passenger transport operations before submitting transportation proposals which affect passenger transport plans, operations and bus routes.

b. operational plans
    i. No plans should be proposed by those responsible for passenger transport operations without prior consultation with transportation planning and highways and traffic.
    ii. Transportation planning and highways and traffic should not submit plans which affect passenger transport operations without consulting those responsible for passenger transport operations.

c. research
    Transportation planning could provide research facilities and information on subjects such as consumer needs, and attitudes towards service and fares policies. Its tasks in this respect should be defined in collaboration with those responsible for passenger transport operations.

D. OTHER TRANSPORTATION UNDERTAKINGS

Mechanisms will need to be developed within the transportation function to establish two-way communications with other bodies concerned with transport, including British Rail, air and water authorities.

Each undertaking should inform other interested undertakings of any plans which may have a bearing on their responsibilities, at an early stage of their thinking.

E. ADJACENT AUTHORITIES

Similar contact will need to be established to ensure that there is co-ordination of highway planning and traffic management plans with the plans of adjacent authorities.

F. MINISTRY OF TRANSPORT

1. The Ministry will need to keep local authorities aware of national priorities, objectives and constraints, and of their implications.

2. The use of computerised data processing in building up mathematical models for application to transportation problems is at present under development, with work being carried out with assistance and advice from the Mathematical Advisory Unit. The Ministry of Transport should continue its function as a collator and disseminator of knowledge on mathematical models.

3. There will clearly be the need for continuation of collaboration between the transportation function and the Ministry on such aspects as:—
   - trunk roads
   - inter-urban roads
   - statutory powers and obligations
   - technical requirements of roads, bridges, etc.
   - developments in research techniques, technologies, etc.

G. PROVINCIAL PLANNING AUTHORITIES

It is assumed, for the purpose of this aspect of the study, that the creation of large multi-purpose authorities and metropolitan authorities would be accompanied by the development of the "provincial planning" concept.

This presupposes the existence of a very small planning staff in the provincial authority who would be responsible for:—

1. initial strategic economic and land use planning on a provincial scale;
2. co-ordinating the planning of authorities within the provincial area, in the context of agreed outline plans for economic development, land use and movements of population.

For example, one aspect of provincial economic planning may be the development of large industrial areas outside the boundaries of the main conurbations in the North-West. This would require development plans for meeting the housing and social needs of the working population and their families, and the provision of highways or other means of transportation reaching outside the local areas of the authorities within the provincial area. The development of strategic and local plans to meet these needs can be satisfactorily undertaken only within a provincial concept.

Close links between the provincial planning authority and the local authorities within the provincial area would be essential. The provincial authority would draw on the resources of the local authorities for information and data. Local authorities would keep the provincial authorities informed of their proposals for study projects and structure plans, and provide the authority with information from their intelligence service.

VIII. IMPLEMENTING THE TRANSPORTATION PROPOSALS

The establishment of the proposed transportation function would have far-reaching implications. The function could be established on a practical, effective basis only within the context of the proposed new structure of local government.

The purpose of this section of the report is to highlight the problems which may emerge in building the proposed function and subsequently in developing it as an operating department which will make an effective contribution to urban planning problems. It suggests the broad approach which senior officers will need to follow in resolving these problems.

The main issues which will probably need to be resolved are discussed below as problems in:–

1. building up the Department
2. the early operating stages

A. BUILDING THE DEPARTMENT

1. *Appointment of senior officers*

The head of land use and transportation should be the first officer in position. His first step in setting up the department should be to appoint the heads of units, as they should be involved in the development of the first broad objectives from which the initial priorities and programmes will be developed.

2. *Assessing initial staff requirements*

The assessment of capability requirements made in Section VI provides broad guide lines. Actual requirements in specific authorities should be determined by the head of land use and transportation on the basis of the initial objectives agreed, in consultation with his heads of units.

3. *Redeployment and training of staff*

An inventory of existing staff engaged in activities related to transportation and planning should be undertaken. Positions should then be filled after assessing each officer against a specification of the jobs to be done, and the required capabilities to fill them. It may be that there will be excess professional staff in some areas and a shortage in others, with consequent career opportunities for officers prepared to move.

The suggested approach to determining training needs should be:–

a. initially – by appraising each officer against the "man specification" for the job, to identify the gaps in his previous training and experience;
b. setting up training programmes to meet the essential needs for technical and managerial skills;
c. following appointment, after twelve months say – by appraising his performance in relation to the key tasks and individual objectives established in the initial stages.

This should be regarded as a continuing need, however, in that individual performance should be reviewed periodically against key tasks and the agreed performance standards as a basis for identifying and satisfying collective training needs.

B. INITIAL OPERATIONS OF THE DEPARTMENT

1. *Activating the new organisation*

It is suggested that the process of bringing the new organisation into effective operation should follow the sequence outlined below:–

a. clarification of the initial broad strategy and objectives of the authority in the land use/transportation field;
b. definition of the senior positions in terms of key tasks and the specific objectives in each task which reflect the priorities of the authority in land use/transportation;
c. the jobs of the subordinate officers should then be defined in a similar way, followed by agreed action plans for achieving the objectives under each key task for the first planning period – possibly six months;
d. regular review of progress against the plan and its objectives between each officer and his immediate superior officer, and agreement on any changes or additions to the officer's action plan.

This method of activating the new organisation would ensure that each officer is concentrating on those activities most likely to make the optimum contribution to the agreed land use/transportation objectives of the authority.

2. *Initial build-up of data*

The head of transportation planning and the transportation research staff should preferably be among the early appointments made. The first task would be to collect the basic data required and the Ministry of Transport should be prepared to provide technical guidance on the initial programme of work.

3. *Additional technical assistance*

a. Consultants

Consultants may be required to provide services in specialist technical fields where the employment of highly-qualified specialist staff would not be economic on a full-time basis.

There will be a need for consultants where advanced technical skills are required. As the nature of the skills advances, so the need for consultants will continue, not only for the direct contribution they can make, but also as a means of providing specialist training for professional staff engaged in transportation investigations.

b. Ministry of Transport

The Ministry of Transport should take the initiative in setting up a body jointly with local authority interests to advise on such aspects as initial selection and training of senior officers.

4. *Computer capability*

A computer will be needed for a wide range of applications in transportation research. Not all local authorities' computers are suitable for traffic analysis work, and there may be a need to employ the services of a computer bureau for the analysis of complex functions.

5. *Communication of technological advancement*

It is desirable that there should be a focal point for the dissemination of information on developments in transportation research and planning techniques, transportation technologies and investment appraisal techniques. It is likely the Ministry of Transport could perform this function. It was noted during this study that the wide range of projects undertaken by the G.L.C. transportation branch includes some where the findings could have an application outside the G.L.C.

The data should be fed to the head of transportation planning who would be responsible for reporting on the implications of new developments relevant to the authority's future transportation needs.

This officer should also build up a technical library for use throughout the transportation function.

6. *Communications generally*

Arrangements will need to be made at an early stage for the initiation of effective communications with relevant government departments, provincial planning bodies, British Rail, local and national 'bus undertakings, air and sea transport undertakings, and major industrial transport users.

The establishment of these external relationships will be an important early task of the head of land use and transportation.

The maintenance of many of these contacts will be delegated, but individual responsibilities should be defined in this respect. This applies especially in regard to the body responsible for the operation of passenger transport.

IX. CONCLUSION

We have been concerned, within the terms of reference and time allocated to this study, to produce a projection of the resources and capabilities that will be required for the transportation functions in local authorities of the future, and we have presented our conclusions in both qualitative and quantitative terms.

The conclusion that there will be a need for technical and managerial skills which are, in the main, outside the existing knowledge and experience of local government has important implications for manpower plans for the transportation function.

Our investigation has necessitated a critical examination of the tasks a transportation function should perform and the kind of organisation required. While we have attempted to relate the role and relationship of the transportation function organisation to the role of an authority as a whole, our terms of reference did not permit a wide ranging examination of the total organisation problems of local authorities of the future.

Accordingly our approach to the organisational requirements of the transportation function and hence its resource and capability needs, has been to move in the general direction that we feel will need to be adopted in applying new organisation concepts to local authorities of the future. This is towards a broader functional approach to local authority management than that of the traditional departmental structure.

The traditional structure imposes inevitable constraints on co-ordination and common sense of purpose, which are necessary in working for the achievement of the functional objective of an authority rather than purely departmental aims.

In terms of the transportation function this approach should make it possible to apply improved management techniques, such as programme budgeting, to determine functional objectives for overall environmental planning and development, and to monitor progress towards overall longer-term objectives without the constraints of the self-contained annual departmental budgeting process.

We have not attempted to assess the operating costs of the transportation function; this is a new function for which no previous cost standards exist. The cost will vary between authorities and the additional cost, if any, to overall establishment will depend on the current availability of men of the right quality already employed by authorities. This cannot be determined without taking a complete inventory of available personnel. In any event to make such an assessment of cost without regard for the redeployment of professional and managerial staff which will arise from applying new organisational concepts to local authorities, would in our view be irrelevant.

Additionally, there is a need for the development of a national strategy in regard to the most effective and economic means of carrying out transportation studies in the areas served by the smaller authorities.

Finally we wish to record our sincere appreciation of the assistance afforded us by the various individuals and bodies on whose experience and knowledge we have drawn freely during the course of the study. We are particularly appreciative of the guidance and advice of Lady Sharp and members of her advisory group, and of the assistance of Mr. Radley of the Ministry of Transport. Without the fullest support and co-operation of all concerned this report would not have been possible.

for URWICK, ORR & PARTNERS LIMITED

J. Slater

ASSUMPTIONS AND CONSTRAINTS

Assumptions and constraints concerning the study are recorded below:–

A. SCOPE OF AUTHORITY

1. The structure of local government in a multi-purpose authority will be similar to that of an enlarged county borough council, and responsibilities relative to planning of land use and transportation, traffic and highways will be vested in the authority.

2. The structure of local government in a metropolitan authority will be on a two-tier basis, but responsibilities relative to planning of land use and transportation (excluding British Rail), traffic and highways in the area will be vested in the first-tier authority.

B. AUTHORITY STRUCTURE

The total authority structure and establishment will be competent to deal with policy and planning within the spirit of the Maud Committee proposals, i.e. fewer departments and committees, effective co-ordination at policy-forming, planning and executive levels.

C. DIVISION OF AUTHORITY WITH CENTRAL GOVERNMENT

The main constraints will be on overall policy, resources and methodology which will be laid down by central government. This will be similar to the present position but with less involvement by central government in detailed planning.

D. PUBLIC TRANSPORT OPERATION

Wherever the passenger transport services are owned by the local authority, the local authority will appoint a professional passenger transport executive. The executive will be responsible for detailed operation and management, subject to general policy direction and control over investment and budgets by the local authority.

DEFINITION OF TERMS

A. Transportation

The definition of "transportation" in the study is in accord with the definition used in the Report of the Royal Commission on Local Government, i.e.:—

> "to cover transport planning, the design, construction and maintenance of highways, traffic management, control of car parking and the provision of public transport"

All the activities embraced by this definition are described in this report. They include:—

1. Outline plans for the broad pattern of communications networks to provide for the future needs of:—
   a. the population in all its activities
   b. industry and commerce.

2. Detailed plans for:—
   a. new and improved highways which are in accord with the above needs and with the need for improvement in physical environment
   b. provision of public transport as an alternative means of travel.

3. Construction and maintenance of highways.

4. Traffic management to ensure the best possible use of existing highways, from the aspects of traffic flow and safety, including provision and control of parking.

B. Transportation terms

Transportation planning

The overall planning process including strategic and tactical planning of transportation in the context of land use and economic planning.

Highway planning

The total process of planning roads including projected flows, deciding alignment, and geometric design to the actual construction stage; it could be in respect of the broad planning of a road system, or simply another piece of road.

Area planning and control

The process of developing proposals and implementing agreed proposals on land use planning on a local scale within the framework of strategic plans, objectives and policies previously agreed. These would include the concepts of "area action plans" and other "local plans" discussed in "Town and Country Planning" — Cmnd 3333 dated July 1967.

Traffic management

Optimising the use of the existing highway network by planning the use of one-way traffic, freeways, traffic lights and other types of traffic furniture. It uses models of existing and projected flows.

It includes the physical control of traffic and the use of traffic furniture, including developing traffic control systems. It does *not* include the building of a new piece of road.

C. General Planning Terms

Strategy

The broad, long-term vision of the development of the area, which may embrace a range of long-term objectives and outline the means by which they will be reached.

Objectives

The various land-marks which should be reached during the process of pursuing total strategy. They describe therefore the situations which will exist by a specific time if the plans are implemented effectively. Their purpose is to generate action to achieve specified, agreed results.

Strategic planning

The process of working out the courses of action to be followed in pursuing the strategy – and longer-term objectives included in the total strategy – and allocating resources to these courses of action in the form of manpower and financial programmes.

Short-term planning

The courses of action to be followed to achieve short-term objectives, within the framework of the strategic plans. These are usually concerned with optimising the use of present resources (e.g. roads, public transport) rather than with improving, or adding to, the resources themselves.

Policy

The guide to making decisions which are in keeping with the overall strategy and objectives. They can be regarded as general laws to be interpreted in specific situations, rather than specific instructions.

This term has been avoided in the report as far as possible, in view of the ambiguity with which it is found to be used by different local authority officers.

D. Management terms

Main activities

The activities which must be undertaken within the department, section, etc., *as a whole* in order to fulfil its purpose or objectives.

Key tasks

The essential *personal* activities of the individual officer which, if carried out effectively, will ensure successful performance in the position he holds.

Action plan

A short-term plan for taking specific action by an individual officer to achieve agreed standards of performance in a key task, or in a number of key tasks, by a specific date. (This management term differs from the definition of an "area action plan" to be adopted locally, showing the shape of development in urban "action areas" – "Town & Country Planning" – Cmnd 3333).

Job specification

A clear definition of the total job of an officer which includes a statement of:–

a. the main purpose of the job
b. position in the organisation, i.e.
  - to whom he is responsible
  - who is responsible to him
c. the activities he should undertake to achieve the job's main purpose
d. the relationships with other officers.

Man specification

A statement of the basic disciplines, skills, experience and personal attributes required in an individual, in order to enable him to fill satisfactorily the requirements of the position described in the job specification.

Appendix III

MAIN PUBLICATIONS STUDIED

A. GOVERNMENT PUBLICATIONS

The Future of Development Plans – Report of the Planning Advisory Group		1965
Transport Policy	Cmnd 3057	1966
Written evidence of the Ministry of Transport to the Royal Commission on Local Government		1967
Town and Country Planning	Cmnd 3333	1967
Public Transport and Traffic	Cmnd 3481	1967
Transport in London	Cmnd 3686	1968
Traffic and Transport Plans (Roads Circular No. 1/68)		1968
Transport Act		1968
Town and Country Planning Act		1968

B. OTHER PUBLICATIONS AND PAPERS

Cost benefit analysis and investment– Feldstein – "Public Administration"	1964
Cost benefit analysis and Public Expenditure – Peters – Institute of Economic Affairs	1966
Liverpool City Centre Plan	1965
The Work of the Highways and Traffic Committee – (Greater London Council) 1967/8	1968
Transportation Studies – a review of results to date from typical areas – Martin, Borg, Anderson and Spence: Transportation Engineering Conference, April	1968
The Transport Revolution –Stuart, "Management To-day", Aug.	1968

Principles and Techniques of Predicting Future Demand for Urban Area Transportation.
M.I.T. Report No. 3 – Martin, Memmott & Bone 1965

Traffic Engineering Practice (2nd edition) E. Davies

The Victoria Line – Social Benefit and Finances, Beesley and Foster 1965

Cost benefit analyses of Road Works – Case 1967

The Urban Transportation Problem – Meyer, Kain and Wohl 1965

A planning programming budgeting system in practice – Luther 1968

Investing in the future of transportation – Seifert, Breuning & Kaffanch, "Harvard Business Review" July/August 1968

C. TRAFFIC AND TRANSPORTATION STUDIES

Traffic in Nottingham 1965 – 2005
A Traffic Plan for the City 1966

Merseyside area Land Use Transportation Study (Interim report) October 1968

S.E.L.N.E.C. Transportation Study – Draft Report No. 1, August 1968

S.E.L.N.E.C. Transportation Study – Technical working paper No. 1, June 1968

S.E.L.N.E.C. Transportation Study – Technical working paper No. 4 November, 1968 1968

INDIVIDUALS WITH WHOM MEETINGS HAVE BEEN HELD

A. COVENTRY C.B.C.

Sir Charles Barratt	Town Clerk
A. Morton	Deputy City Treasurer
B. R. Rossiter	Deputy City Architect and Planning Officer
N. McDonald	General Manager, Transport Department
J. C. Beevers	Asst. City Engineer (Highway Redevelopment and Transport)
D. R. Eyles	Group Leader, Transportation Study

B. GREATER LONDON COUNCIL – DEPARTMENT OF HIGHWAYS AND TRANSPORTATION

P. F. Stott	Traffic Commissioner and Director of Transportation
B. V. Martin	Chief Engineer (Transportation)
J. D. C. Churchill	Policy Group Manager
T. M. Ridley	Chief Research Officer
P. T. McIntosh	Asst. Divisional Engineer (Networks)
K. W. Huddart	Asst. Divisional Engineer (Traffic)
G. Ridley	Chief Engineer (Traffic)
J. S. Moulder	Divisional Engineer (Secondary Roads Division)

C. LIVERPOOL C.B.C.

N. H. Stockley	City Engineer

D. MANCHESTER C.B.C.

G. C. Ogden	Town Clerk
H. Thorpe	Parliamentary Secretary to Town Clerk
J. Hayes	City Engineer
K. M. Ledson	Asst. City Engineer, Highways Group
J. T. Wadsworth	Principal Assistant, Highways Planning
I. W. Ballantyne	Principal Assistant, Traffic Engineering
J. S. Millar	City Planner
B. Parnell	Deputy City Planner
J. Thompson	General Manager, Transport Department
J. B. Cunliffe	Head of S.E.L.N.E.C Area Transportation Study

E. MINISTRY OF HOUSING AND LOCAL GOVERNMENT

R. Cox	Under Secretary (General Planning)
W. Burns	Chief Planning Officer

F. MINISTRY OF TRANSPORT

R. Spence	Head of Transportation Study Unit
D. Quarmby	Head of Mathematical Advisory Unit

G. NOTTINGHAM C.B.C.

P. M. Vine	Town Clerk and Chief Executive Officer
E. S. P. Evans	City Engineer
F. M. Little	City Planning Officer

H. SHEFFIELD C.B.C.

D. B. Harrison	Town Clerk
N. Rayman	City Engineer

J. LONDON TRANSPORT BOARD

R. F. Bennett	Board Member responsible for Long Range Planning

K. CENTRE FOR ENVIRONMENTAL STUDIES

A. G. Wilson	Assistant Director

PROPOSED ACTIVITIES OF CENTRAL INTELLIGENCE SERVICE

(Relevant to transportation and general economic needs
but excluding specific requirements of
other functions in the Authority)

I. MAIN PURPOSE

To provide a central source of economic research, information and advice by:—

1. Undertaking comprehensive research into the present economic position and likely future economic needs of the area served by the authority as a basis for developing practical plans of action to meet these needs.

2. Providing an economic and statistical service on which departments and committees can draw when formulating plans to develop their own services.

3. Providing an effective channel of communication with industry and commerce regarding likely future needs and developments.

II. MAIN ACTIVITIES

In order to meet the above requirements the central intelligence service will need to carry out the following main activities.

A. PROVISION OF STATISTICAL DATA

Ensure that statistical data relevant to the social and economic background to the area, in its regional context is readily available by:—

1. Collecting external data covering the structure and trends of:—
   a. Population and migration
   b. Employment/unemployment/activity rates
   c. Income and expenditure
   d. Industrial and commercial activity.

2. Co-ordinating internal data already available within departments in order to identify gaps in information, and to ensure availability of data to all parts of the authority when required.

B. ANALYSIS OF DATA

1. Analyse economic and social data and make projections of the physical resources, economic and social structure of the area, highlight areas of potential strength and weakness, to provide a basis for overall strategic planning by the authority.

2. Examine the analysis, in conjunction with departments, in order to:—
   a. Project the likely effect of new courses of action by departments on the overall economic and social environment.
   b. Identify gaps in the information available which is necessary for departmental planning.

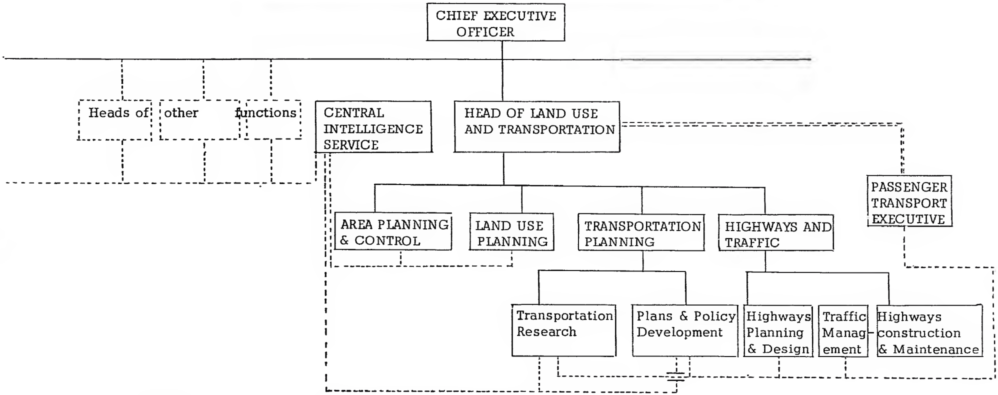
C. SPECIFIC ECONOMIC RESEARCH

1. Undertaking further specific research into areas of major importance involving more than one department, with the purpose of, for example, establishing:—
   a. The commercial and industrial structure most likely to produce prosperous growth and stable employment in the area served by the authority, within the context of regional economic plans.
   b. The conditions most likely to achieve this pattern in terms of:—
      - Location and facilities
      - Ancillary services
      - Transportation
      - Energy and Power
      - Housing and social environment
      - Education and training in skills
   c. Practical ways of deploying available resources to help bring about these conditions.

2. Provide a specialist service, as required, to departments undertaking research projected in their own services, including the economic aspects of cost-benefit analysis.

APPENDIX VI

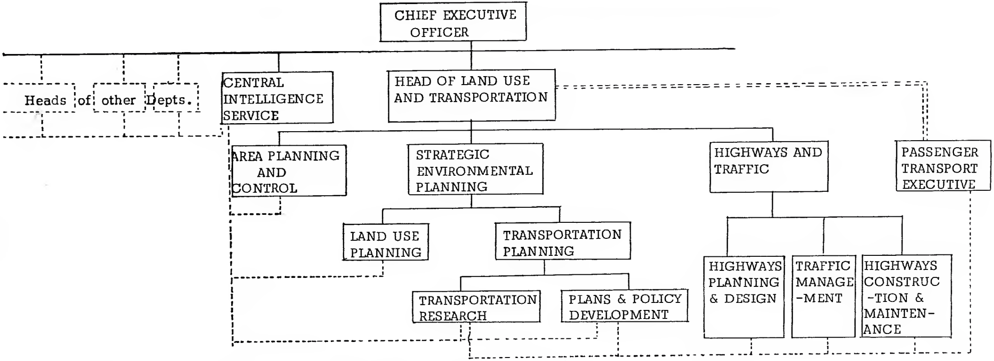
PROPOSED BASIC ORGANISATION STRUCTURE - MULTI-PURPOSE AUTHORITY


CHIEF EXECUTIVE OFFICER
Heads of other functions
CENTRAL INTELLIGENCE SERVICE
HEAD OF LAND USE AND TRANSPORTATION
PASSENGER TRANSPORT EXECUTIVE
AREA PLANNING & CONTROL
LAND USE PLANNING
TRANSPORTATION PLANNING
HIGHWAYS AND TRAFFIC
Transportation Research
Plans & Policy Development
Highways Planning & Design
Traffic Manag- ement
Highways construction & Maintenance

NOTES:
1. This chart is diagrammatic and does not indicate relative status.
2. Broken lines denote relationships between functions which are not coordinated by a Chief Officer. The double broken line denotes the special relationships with the passenger transport executive described in the assumption.
3. Continuous lines denote lines of authority within a function.

APPENDIX VII

PROPOSED BASIC ORGANISATION STRUCTURE - CONURBATION AUTHORITY


CHIEF EXECUTIVE OFFICER
Heads of other Depts.
CENTRAL INTELLIGENCE SERVICE
HEAD OF LAND USE AND TRANSPORTATION
AREA PLANNING AND CONTROL
STRATEGIC ENVIRONMENTAL PLANNING
HIGHWAYS AND TRAFFIC
PASSENGER TRANSPORT EXECUTIVE
LAND USE PLANNING
TRANSPORTATION PLANNING
TRANSPORTATION RESEARCH
PLANS & POLICY DEVELOPMENT
HIGHWAYS PLANNING & DESIGN
TRAFFIC MANAGE-MENT
HIGHWAYS CONSTRUC-TION & MAINTEN-ANCE

NOTES:
1. This chart is diagrammatic and does not indicate relative status.
2. Broken lines denote relationships between functions which are not coordinated by a Chief Officer.
   The double broken line denotes the special relationships with the passenger transport executive described in the assumption.
3. Continuous lines denote lines of authority within a function.

KEY TASKS – HEAD OF LAND USE AND TRANSPORTATION

MAIN PURPOSE

To manage the total land use and transportation function, and to provide effective communications and understanding between the elected members and the land use and transportation operations.

KEY TASKS

1. To initiate, produce and develop within the framework of the authority's overall strategic, social and economic aims, strategies and objectives for land use and transportation, which define the broad basic pattern of development within the framework of national and provincial objectives and policies.

2. To produce within the context of agreed strategies, objectives and time-scales:—
   a. co-ordinated plans for the development of land use and transportation including highways and associated restraints, and public transport;
   b. shorter term plans to improve the utilisation and effectiveness of existing highways and transportation systems.

3. To submit the above proposals and plans within a framework of:—
   a. targetted costs
   b. an evaluation of economic and social benefits.

4. To execute, co-ordinate and control the agreed plans and programmes by:—
   a. effective direction and control of:—
      - land use planning and transportation planning
      - area planning and control
      - highways and traffic
   b. maintaining close functional relationships with other relevant functions of the authority, the passenger transport executive and other relevant bodies in other authorities and with provincial interests and outside organisations.

5. To establish agreed individual tasks and objectives with each subordinate officer in his function, covering his activities, priorities and financial expenditures; to provide leadership and guidance to assist each officer.

6. To review regularly the activities of passenger transport undertakings owned by the authority to ensure that they are in accord with agreed objectives and plans for transportation; to advise the chief executive officer when to use the reserve powers of the authority in policy direction and financial control.

7. To communicate regularly with the relevant committees to ensure that elected members have a comprehensive and balanced understanding of the land use and transportation problems, of the studies being carried out, and of the strategic plans and short-term action plans being developed to resolve these problems.

8. To work out and operate a programme for training and interchange of personnel within the function to enable them to obtain wider experience and qualify for additional responsibilities.

9. To undertake or initiate public relations activities on a basis agreed with the chief executive officer of the authority, with the objective of increasing public understanding of the strategy, aims and policies of the authority in the field of land use planning and transportation.

KEY TASKS – HEAD OF STRATEGIC ENVIRONMENTAL PLANNING

MAIN PURPOSE

To propose and develop strategic plans and objectives covering total environmental planning embracing all forms of transportation within the jurisdiction of the authority.

KEY TASKS

1. To establish objectives, priorities and time scales for transportation planning overall strategic, social and economic aims, strategies and objectives for land use and transportation.

2. To produce within the context of agreed strategies, objectives and time-scales, co-ordinated plans for the optimum development of land use and transportation, including highways and associated restraints, and public transport.

3. To submit the above proposals and plans within a framework of: –
   a. targetted costs
   b. an evaluation of economic and social benefits

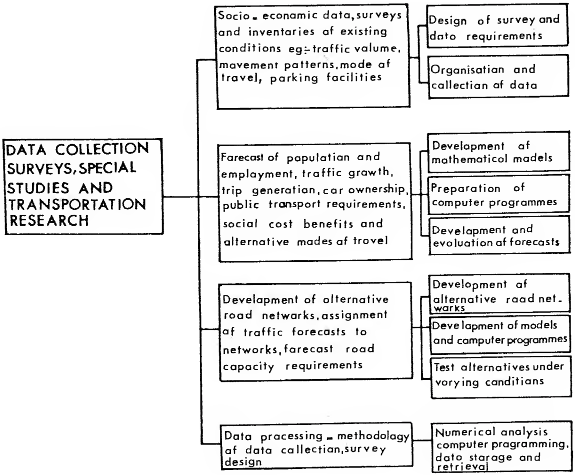
4. To establish and develop good personal and working relationships with other relevant functions of the authority, the passenger transport executive, the relevant bodies in other authorities, and with provincial interests and outside organisations.

5. To establish agreed individual tasks and objectives with each subordinate officer in his function, covering his activities, priorities and financial expenditures; to provide leadership and guidance to assist each officer to achieve his objectives.

6. To keep informed on development and technologies in the U.K. and overseas which have a bearing on the land use and transportation functions.

7. To participate, as required, in the strategic planning for the provincial area; to provide information and keep the provincial planning authority informed on developments and plans within the authority.

SPECIMEN ACTIVITY/CAPABILITY ANALYSIS TRANSPORTATION RESEARCH


DATA COLLECTION SURVEYS, SPECIAL STUDIES AND TRANSPORTATION RESEARCH
Socio-economic data, surveys and inventories of existing conditions eg:- traffic volume, movement patterns, mode of travel, parking facilities
Design of survey and data requirements
Organisation and collection of data
Forecast of population and employment, traffic growth, trip generation, car ownership, public transport requirements, social cost benefits and alternative modes of travel
Development of mathematical models
Preparation of computer programmes
Development and evaluation of forecasts
Development of alternative road networks, assignment of traffic forecasts to networks, forecast road capacity requirements
Development of alternative road networks
Development of models and computer programmes
Test alternatives under varying conditions
Data processing - methodology of data collection, survey design
Numerical analysis computer programming, data storage and retrieval

Basic skills	Experience or post graduate training	Aptitudes of staff as a whole
Operational research	Varied experience in operational research applications	Analytical and manipulative skill in the interpretation of data, ability to visualise the nature of the problems and think in model terms
Civil Eng'g	Post-graduate training in Traffic Eng'g	
Economics or statistics	Application of Economics and Statistical analysis to transportation problems	
Mathematics or Sciences	Varied experience in operational research	
Civil Eng'g (Technician training)	Traffic engineering - traffic surveys and studies	Ability to work with a team or individually

Statistics	Numerical analysis, programming operational research applications in data processing	Ability to apply and adapt expertise to a variety of problems

KEY TASKS – HEAD OF TRANSPORTATION PLANNING

MAIN PURPOSE

To organise and direct the activities of the transportation planning function in the development and continual review of strategic plans and policies, embracing all forms of transportation within the jurisdiction and influence of the authority.

KEY TASKS

1. To establish objectives, priorities and time scales for Transportation Planning covering:–
   a. collection and processing of data;
   b. estimation of future transportation needs;
   c. development and testing of alternative transportation models;
   d. development of firm proposals for strategic objectives and plans;
   e. special studies to meet specific needs.

2. To develop, in conjunction with land use planning, strategic plans and policies, including:–
   a. relative investment in private and public transport facilities;
   b. highways networks;
   c. methods of restraint on use of highways.

3. To consider and appraise the advantages and disadvantages of alternative schemes in the light of the availability of capital resources, and to evaluate proposals in terms of :–
   a. capital investment costs to the authority;
   b. economic and social benefits.

4. To review objectives, plans and policies, and propose modifications where necessary, in the light of changes in assumptions, forecasts and financial constraints, and of changes in objectives, plans and policies of other functions in the authority.

5. To evaluate cost and benefits of completed plans in comparison with original estimates, as a basis for improving the effectiveness of future transportation planning.

6. To contribute to the improvement of the total planning process and transportation services in the area by developing good personal and working relationships with land use planning, highways and traffic, the central intelligence service, the passenger transport executive and the transportation functions of adjacent authorities, and with British Rail and the Divisional Road Engineer of the Ministry of Transport.

7. To agree realistic measures with each subordinate officer for meeting the departmental objectives; to identify training needs of the subordinate staff in the context of the agreed individual objectives, and to help them to achieve these objectives by providing appropriate guidance and training.

KEY TASKS – HEAD OF HIGHWAYS AND TRAFFIC

MAIN PURPOSE

To carry out the agreed plans and policies of the transportation function as regards:–

a. highways planning and design;
b. traffic management;
c. highways construction and maintenance.

KEY TASKS

1. To implement the agreed highway plans on the basis of information recieved from transportation planning, including determining the location of highways alignment, geometric design, road junctions, intersections, drainage and lighting, having due regard to the need for effective landscaping to avoid any adverse effect on surrounding land.

2. To undertake construction, directly or by contractors, of roads, pavements and bridges in accordance with agreed plans, specifications, priorities and cost estimates.

3. To undertake subsequent maintenance work in accordance with specified standards, maintenance requirements and cost estimates.

4. To ensure best use of existing highways and traffic systems by improving traffic flow and improving road safety through effective traffic management and control systems.

5. To contribute to the improvement of the total planning and transportation activities in the area by developing and maintaining effective relationships with:–

   transportation planning, the passenger transport executive, land use planning, the highways and traffic departments of adjacent authorities, and the Divisional Road Engineer of the Ministry of Transport.

6. To institute and operate control procedures to check on progress, achievements and costs in comparison with agreed objectives and budgets. To initiate appropriate corrective action where needed.

7. To agree with each subordinate officer, individual objectives and action plans to achieve the department's objectives; to provide guidance and assistance where relevant in achieving the agreed objectives.

A possible postgraduate course in transport planning

(2 year course of 6 terms)

Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
1. *Urban transport and the community (1)* (introduction to transport planning; overview of history and present state of planning and transport problems)	6. *Urban transport and the community (2)* (urban structure, embracing urban layout and urban sociology)	11. *Urban transport and the community (3)* (the legal and planning environment)	16, 17 and 18. *Transport project* (project or practical case study in the generation and execution of area transport plans – equivalent to 3 courses)	21, 26. *Case studies of administrative and organisational problems* *Rest of programme* – equivalent of 4 courses in each of terms 5 and 6, to be divided between elective courses and/or a project or projects by individual students. Courses and projects should cover a wide range of subjects, including highway engineering, transport techniques, public finance, transport economics, environmental planning and design, advanced operational research application.	
2. *Basic computing*	7. *Traffic Science (1)* (theory and practice of traffic flow, traffic planning and control)	12. *Traffic Science (2)*			
3. *Economic analysis (1)* (marginal analysis; demand cost concepts; project evaluation; organisational objectives; strategy and capital budgeting).	8. *Economic analysis (2)*	13. *Economics* (estimation; forecasting; fitting cost benefit models; gravity models).	19. *Public transport systems*		
4. *Maths for optimisation* (optimisation by the calculus; search methods; linear and dynamic programming)	9. *Statistics (1)* (probability; statistical decision making)	14. *Statistics (2)* (statistical method)	20. *Financial control and appraisal*		
5. *Behavioural Science (1)* (sociology, i.e., the structure and functioning of social groups and organisations)	10. *Behavioural Science (2)* (social psychology i.e., the individual in the group and the organisation)	15. *Manpower planning: personnel relations*			

FULL TIME POSTGRADUATE TRANSPORT COURSES IN BRITISH UNIVERSITIES AND COLLEGES

University or College	Course(s)	Length of Course	Number of Attending Students 1968/69
1. BIRMINGHAM	M.Sc/Dip. Highway & Traffic Engineering	1 year	14
	M.Sc/Dip. Transportation & Traf. Eng.	1 year	23
2. BRADFORD	M.Sc/Dip. Traffic Eng. & Planning	1 year	6
3. CITY	M.Sc. Municipal Eng. (Highways)	1 year	4
4. CRANFIELD	Dip. Transport Technology & Management	1 year	2†
5. IMPERIAL COLLEGE, LONDON	M.Sc. Transport Engineering	1 year	13
6. LEEDS	M.Sc. Transportation Engineering	1 year	18
	M.A. Transport Economics	1 year	8
7. LIVERPOOL	M.T.D./Dip. Transport Design	1 year	3
8. NEWCASTLE	Dip. Highway/Traffic Engineering	1 year	3
9. PORTSMOUTH COLLEGE OF TECHNOLOGY	M.Sc. Transportation Engineering	1 year	*
10. SALFORD	M.Sc. Transport Engineering	1 year	5
	M.Sc. Highway Engineering	1 year	*
11. SHEFFIELD	M.Sc/Dip. Traffic Engineering	1 year	3
12. SOUTHAMPTON	M.Sc/ Transportation Planning & Eng.	1 year	*
13. STRATHCLYDE	M.Sc/Dip. Highways & Traffic Eng.	1 year	8
14. SURREY	M.Sc. Highway Engineering	1 year	11
15. SUSSEX	M.A. Transport Economics	1 year	5
Excluded are:–	(i) All undergraduate courses. (ii) All part-time courses and short courses. (iii) Courses in urban design, urban studies, planning, management or economics with a subsidiary transport content. (iv) Courses in the vehicular aspects of transport e.g. in mechanical engineering, vehicle technology, etc. and in construction engineering. The symbols used are as follows:– * Starting in 1969/70. † Course not being run in 1969/70.		

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MINISTRY OF TRANSPORT

Transport Planning: The Men For The Job

A Report to the Minister of Transport by Lady Sharp

January 1970

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TO THE RT. HON. FRED MULLEY, M.P.,
MINISTER OF TRANSPORT

FOREWORD

THE AUTHORITIES FOR TRANSPORT PLANNING

When I was asked to undertake this inquiry into the manpower needs of urban transport planning, the Royal Commission on Local Government in England was in the middle of its work. I was a member of the Commission and was able, as the inquiry progressed, to relate my findings to the kind of authorities which the Commission would propose. The Commission's report (Cmnd 4040) was published before I had finished; but what shape re-organisation will finally take is still to be decided. I believe, however, that the conclusions in this report are valid whatever the shape of re-organisation; provided that it creates local authorities responsible for both transport and land use planning over wide areas, including both town and country, and so drawn that the planning problems can be effectively handled. This much I assume throughout the report. The manpower problems of transport planning can never be solved until this is done; though a start can, and indeed must, be made at once.

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